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Chasing Trouble.

If you know where to look for what you want, you find it quickly. In the average telephone exchange it is probable that the waste found in the item of time spent on trouble is one of the most obvious items of useless expense. Time spent in actually making the repairs, and fixing the thing up so well that it will never come in trouble again, is not wasted. But this is a small proportion of the whole time spent on each trouble. Locating the fault makes the delay.

Of course there is no denying that in many exchanges early locations of faults are impossible, because there is no good testing apparatus. We have heard troublemen in small exchanges call the manager, and the directors "back numbers" and "skinflints", and such hard names, on account of the deficiency. A little conversation brings out the troubleman's further ideas—and his catalogues. Usually what he wants is a highly polished nickel and rubber affair, adapted to high grade work on cables. He aspires to be a real wire chief, and thinks the first step is to get the equipment. When he is a little older he will learn that brass buttons and epaulettes never made a general. Then he will write to TELEPHONY, because he has not been wise enough to keep his old numbers, and Prof. Smith will tell him on the Query page how to make a slide wire bridge, or ohmmeter, and then, we hope, he will make his real start toward that good wire chief's job.

Today many exchanges have their slide wire and head telephone arrangements, or have even gone along to the stage of a good voltmeter equipment, with properly wired keys. But do they locate trouble accurately, every time, on the first few tests? Just ask the man who goes out to find it! Does he find it directly, when told where and how it shows? Ask the wire chief how many times he calls in before he asks for an "O. K."!

All this means that in hunting telephone trouble a man is constantly meeting new conditions. Past experience can offer no suggestion to guide him. If his memory held the history of other troubles, some of which had produced the same indications, he could have a keen eye for causes, and, perhaps, make his location in half the time.

TELEPHONY wants to help its readers by giving them a chance to swap experience. If our readers will but get into the game, they can soon post each other so that a trouble

will have to be exceptionally difficult to baffle discovery. The way to help yourself is by putting the other fellow under obligations to you, by telling him something useful. Never fear but he will come back with something you need! We want every man who deals with the plant, or the operating, or the business sides, for that matter, to join with us, and do his best to make our pages of "troubles" a useful, readable section of this paper.

The Patient Sublicensee.

Sometimes a company having sublicensee relations with a Bell telephone company writes to this office, and asks for advice about its troubles. Now, there are sublicensees, and sublicensees—and managers for the same. There's one fellow over in a certain state who freely uses the services of the experts who answer the questions of our subscribers—gets a good many times the worth of his subscription every year in the form of free advice, and fifteen hundred pages or so of reading matter thrown in to make a bargain. Once he was invited to give an account of some work he had been doing, which would have interested other telephone men. His first inquiry was about compensation, and he made it known that the value he set on his time was big. His exchange would have been a valuable connecting link for the Independents, if it had not been sold out. That represents one kind of a sublicensee.

The other kind is the company controlled by straightforward, sturdy men, who didn't know much about the telephone business when they went into it—built up a local exchange, wanted toll service, and went where they could get it—or where they were forced to go. Now they are finding out a good deal about the telephone business, and want to know more. If we can help them, we shall gladly do so.

The sublicensee proposition has been getting exploited. One man after another has been getting acquainted with his neighbors. It has been found that where Independent companies are strong, a sublicensee does not have to sign an agreement to limit its territory, refuse to connect with other companies of a specified class, purchase material of a certain company, etc. It has been found that an Independent company makes a good neighbor. Sometimes a toll line between the two is quietly built. In fact, a good many of the confirmed sublicensees are beginning to wonder if they are getting all that they should. Some have seen the sublicensee company at a strategic point suddenly come out with a new board of directors, representing foreign ownership and its friends. How are these things done, and why? What are our chances? These are questions for the prudent sublicensee to ask.

In a great many sections the sublicensees are strong enough to control the business if they wish to do so. More than a fourth of the telephones which may be reached over Bell lines belong to local companies and associations, if we may believe the annual report of the A. T. & T. company's president.

The far seeing officers of these companies know how great a preponderance of the terminals are controlled by locally owned companies, and are looking forward to the time when they may get a share of the through business, on the long distance lines, which seems to be so profitable. They hope to do this some day. That is why they are looking upon the proximity of strictly Independent companies with so much satisfaction—and trying to keep their neighbors Independent.

In the meantime, they are watching local conditions carefully. They are getting acquainted with other sublicensees; with Independents; learning what the Bell company is doing in other states—and, above all, keeping control of their own proposition in their own hands. Once we thought the sublicensee was asleep. If he was, he has awakened. He is patient, but not drowsy. Some day he will move—if he doesn't wait too long, and find himself pushed.

Time for a Rest.

Rest may be none the less grateful when it comes from a change of activity, rather than absolute quiet. Telephone men who have the interests of their business at heart can now use their hands, and give their tired eyes a little comfort. They are not obliged to be forever turning an anxious glance toward the capitol, to catch the danger signals which the members of the fraternity who have been so vigilantly on guard have been obliged to send up so often. Let us all rejoice that, after strenuous sessions, our wise legislatures have decided to let the telephone men live another year.

System.

This is an age of systems; systems of material arrangement and systems of doing work. Long before the days of John Wesley and the first Methodists it was realized by a few that the man who arranges his work in an orderly way gets the most done. This knowledge has become common property. All now believe, or at least say so, that work must be well arranged if it is to be successful. Yet like many other bits of common property, its value is underestimated by many because it costs nothing.

If every young man had to pay five hundred dollars to be initiated into the "Ancient and Honorable Order of Successful Men," if after days or weeks of careful preparation the candidate were led through the dignified and impressive rites, conducted under dim light at the dead of night, with all sounds of the world shut out; if then he were given the magic key, SYSTEM, and properly instructed in its use, he might have greater respect for the idea and be more diligent in its application.

As it is, some one tells him, "Plan your work, then work your plan." It sounds easy. He tries it and fails. No, it is not easy. The attractions of other things are too diverting. It requires real courage to stick to the program. Yet he must stick if he wants success.

The by-product of system is quality. No man can work even a little at random and do his best. When following a definite program, he can give free and undivided attention to the subject at hand, making the best of it. Other duties do not worry him, for each has its time in which it will receive attention.

The New Citizens' Exchange at Lansing

By R. D. Lillie

The new Lansing exchange of the Citizens Telephone Company, of Grand Rapids, Mich., which has been in process of construction for several months, is now complete. The cut-over from the manual to the automatic system has been made, and the new and enlarged system has in all respects been brought to smooth working order. Only the officers of the company, including General Manager Tarte and Local Manager Hughes and their helpers know what a task it is to cut over to a new exchange, without demoralizing the service, but now that it is done, they can plan for a fresh start—to reach the three thousand mark in their subscribers, which Mr. Tarte confidently predicts will be reached two years hence—and his predictions in the past as to his company's growth have had a way of coming true.

Lansing is now a city of about 35,000 population. The last 20,000 have been gained in the past eight years, during which the city has become a hustling place, and everybody hopes and expects that this rate of increase will continue.

The first Independent telephone company to serve Lansing was the old Citizens Telephone Company of Lansing, which was established through the efforts of some of the local business men. The company did not make a great success of the new venture, however, and, in 1898, by which time the Citizens company of Grand Rapids had expanded considerably, the Lansing concern sold out to the Grand Rapids company, the present owners. The company improved the service as much as it was possible to do with the equipment then in use, but, shortly after the transfer, negotiations began to be made with the common council of Lansing for a new franchise, under which the company should agree to install automatic equipment and in other ways improve the service on being granted certain privileges as to rates, etc. The agreement finally reached was that, in consideration of installing automatic service, the company was given a franchise, with the following schedule of rates agreed upon; Instead of the old rates of $18 for residence telephones and $24 for business telephones, the new rates should be $20 for residence and $30 for business telephones, with a provision that those who signed contracts for four years could have the new telephones during that period for the old rate. As soon as the number of subscribers reaches 2,400 it is provided that the rates may be increased to $22 for residence telephones and $33 for business telephones, and a maximum rate of $24 for residence telephones and $36 for business, when the number of subscribers reaches 3,200. The company has at present more than 1,800 subscribers.

The Manager's Office with Local Manager F. C. Hughes at the Right and H. H. Ide, Superintendent of Equipment of the Citizens' Company.

The New Lansing, Mich., Exchange Building, of the Citizens' Telephone Company.

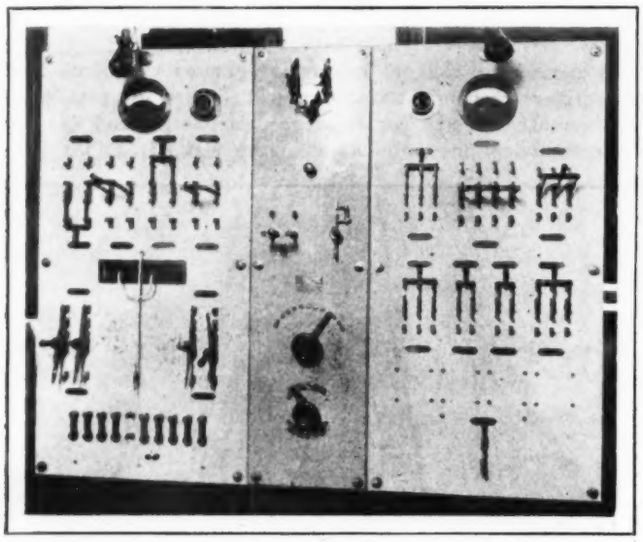
The new exchange, which is located in the block adjoining the State Capitol lot, at No. 220 Capitol avenue, is a model telephone building. It is built of reinforced concrete, faced with red brick, and is fireproof throughout. It consists of two stories and a 9-ft. basement, which is mostly above ground. The basement contains the furnace, coal rooms and cable runways, but the greater part of it is used as a supply department for cables, heavy construction material, etc.

At the entrance of the building is the lobby, or public waiting room. This room is furnished in golden oak, as is the entire lower floor, with tile floor, and is equipped with sound proof booths for long distance service. To the right is the office of Manager Hughes, and the balance of the

The Business Office in the Lansing Exchange Building.

south half of this floor is used by the cashier and bookkeepers. The north half of this floor is occupied by the toll board.

Five operators are required to handle the toll business for the Lansing exchange, but provision is made for a larger number, as it is expected that a considerable increase in toll business will be secured in a short time, on account of the growth of the Home Telephone Company's exchange at Detroit, which now has 12,000 telephones, and the development of other points in eastern Michigan by the Interstate Long Distance Company of Detroit.



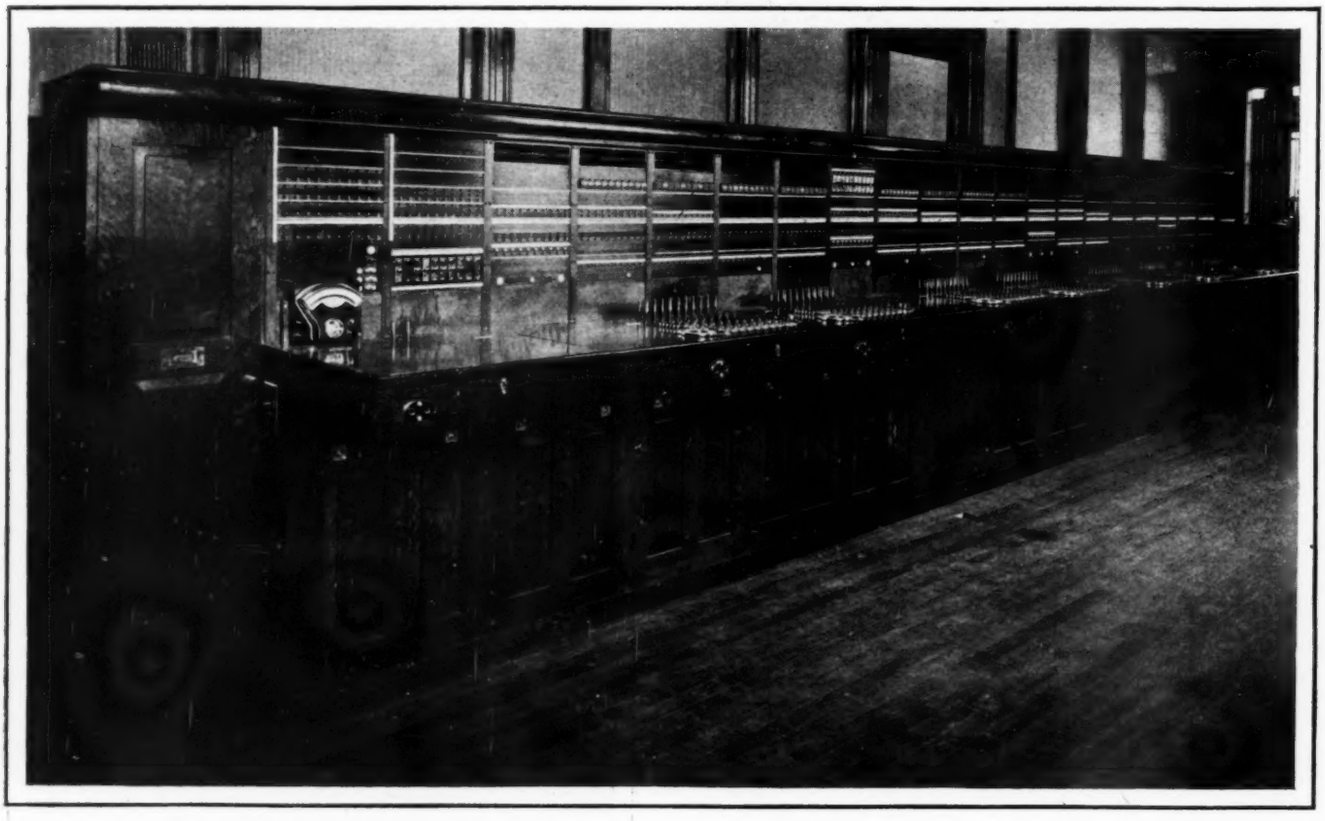
Front View of Power Board.

On the second floor, is found the switching equipment. The apparatus is all of the automatic type, and was furnished and installed by the Automatic Electric Company.

All cables enter the building through a concrete tunnel 25 feet long, 6 feet high and 4 feet wide, extending from the building into the center of the street. The method of making the cut-over was as follows: Permanent cables were run from the distributing frame in the new building to the several different manholes about a block from the building, and were there bridged to the old cables. After the cut-over was made, the cables going up to the old office were cut off in the different manholes. In this way the change was made without cutting any of the lines out of service.

The Storage Battery Equipment.

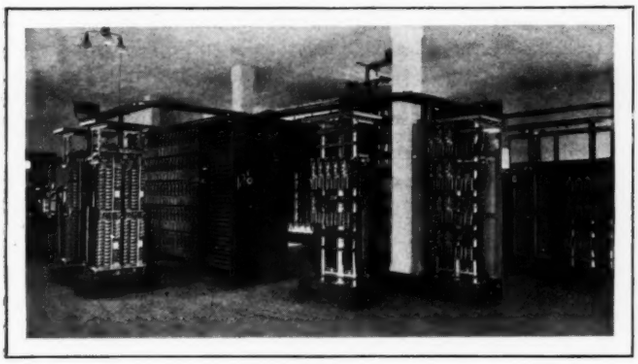
An American Electric Fuse Company distributing board has been installed, of 1,800 lines capacity, which can be increased at any time. It is equipped with self-soldering coils. On the line cable side, there is a complete equipment for 2,000 cable pairs. The terminals on the line side are in groups of 25 pairs, mounted 200 high; on the central office side in groups of 200 pairs, mounted in two tiers.



The Toll Board in the Lansing, Mich., Exchange of the Citizens' Telephone Company of Grand Rapids, Mich.

After going through the distributing frame, lines are carried directly to the automatic switches. Instead of going to a first selector switch, they go to a Keith type line-switch. These are mounted in groups of 100.

The automatic apparatus consists of a primary and secondary line switch, first and second selectors and connectors. In making calls from 300 to 800 and 3,000 to 8,000, the primary and secondary line switches, first selectors and connectors are used. On all calls above this, the primary and secondary line switch and first selector, second selector, and connector are used.



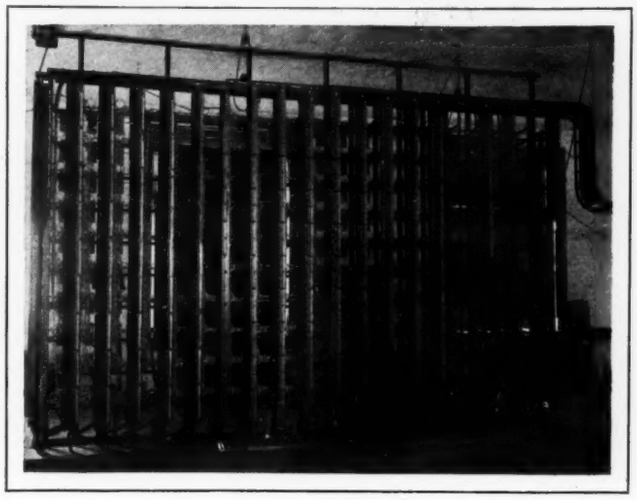
General View of the Automatic Exchange Showing the Various Banks of Selectors.

On each board is mounted a power panel, which has the generator, busy, main and ground batteries. From each thousand section is a main feeder terminal, which distributes the current to the different boards in that thousand.

Instead of using ten trunks to ten first selectors on each board, the ten trunks are run through the secondary board, thereby reducing the trunks to first selectors. For a thousand subscribers, it would be necessary to use one hundred first selectors, but, by using the secondary board, the first selectors may be cut down to any number desired. In other words, the secondary board is a duplicate primary board and works in the same manner.

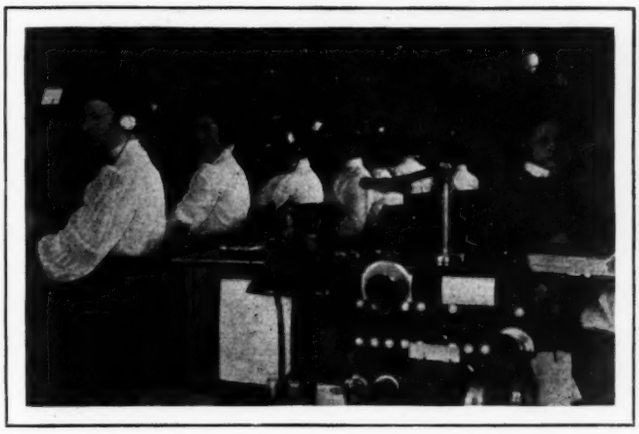
In this exchange a common battery, two-wire system is used, thereby doing away with the ground wire at the subscriber's station.

The power apparatus includes a rectifier for charging storage batteries, which is run from a 220-volt alternating current, and an Automatic Electric Company harmonic convertor, which is run on the storage battery current of 46 volts.



The Main Distributing Frame.

On the power board there is a high and low voltage tell-tale, ammeter and voltmeter and underload and overload switches, a complete equipment for an automatic exchange. The storage battery plant consists of two sets of 24 cells each, Gould, 150 ampere-hour cells.

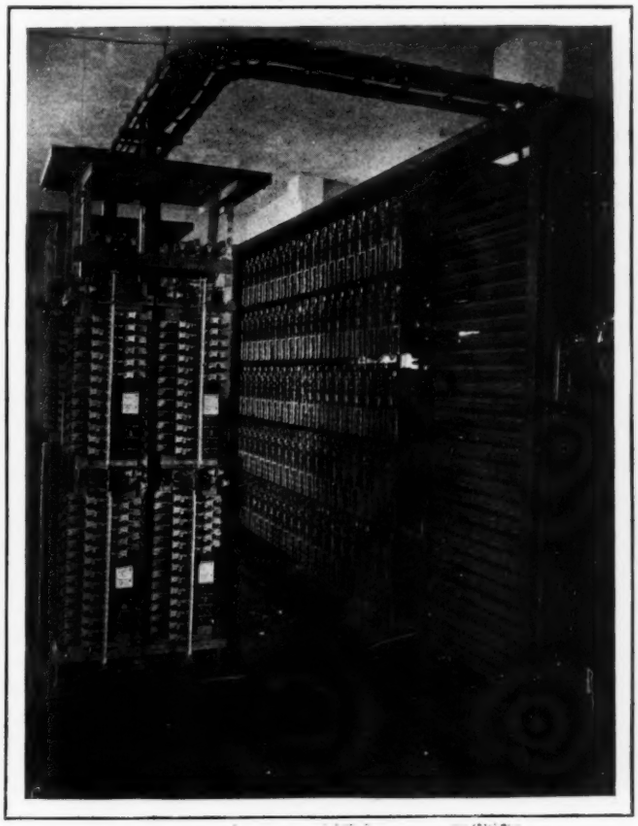


The Old Manual Switchboard.

The toll board is an eight-position board, the first position being equipped with a wire chief's test panel, the next two toll, one recording position, two more toll, and two rural positions. It is a multiple board, equipped with transfer trunks to the automatic switches and the different positions.

The rural telephones will be of the manual type.

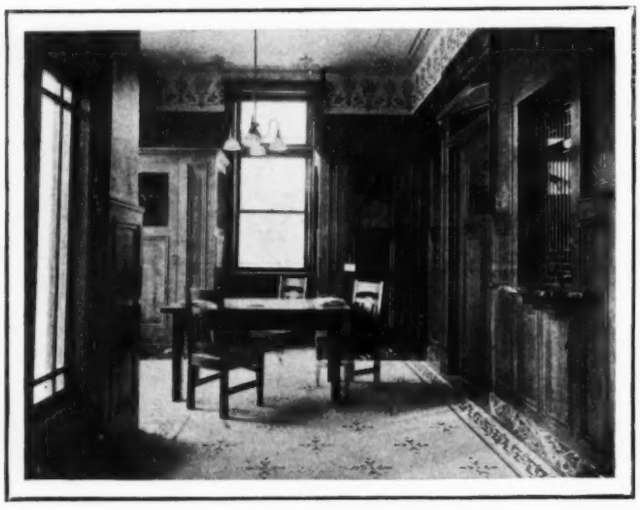
Very little trouble was caused by the cut-over. For the first few days after it was made, the capacity of the exchange was overtaxed, as everybody with automatic telephones was trying to get everybody else similarly situated. It was too much of a novelty to be resisted, with the result



Secondary Line Switches and First Selectors.

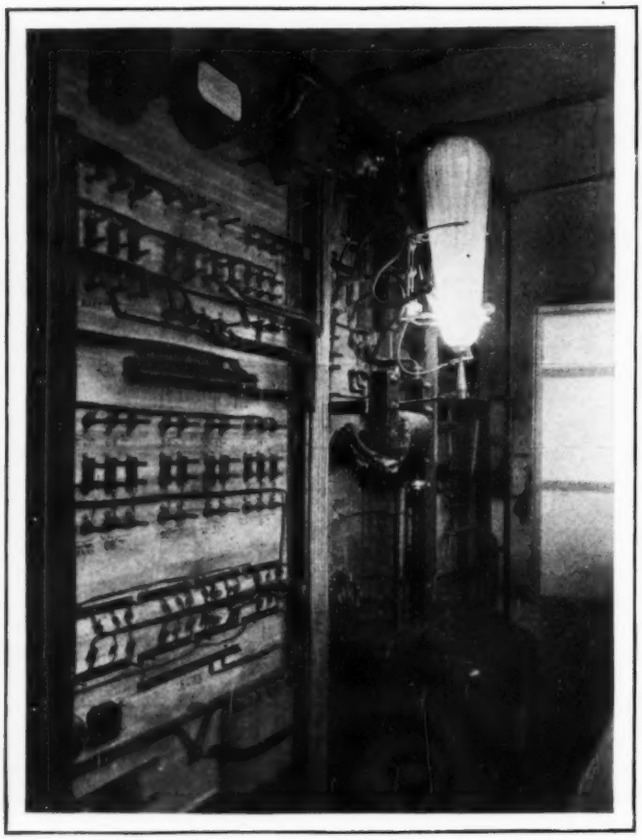
that they frequently got the busy signal. But it was not long before normal demands only were made on the plant, and the subscribers are loud in their praise of the new and better service.

The Citizens' Telephone Company was organized in



The Lobby or Main Entrance to the Building.

Grand Rapids, Mich., Sept. 13, 1895, with a capital stock of $100,000. Service was first given in its Grand Rapids exchange July 1, 1896, with 832 telephones installed. The growth of the Grand Rapids exchange since then has been very rapid, and it now has 9,500 telephones in service. Out-



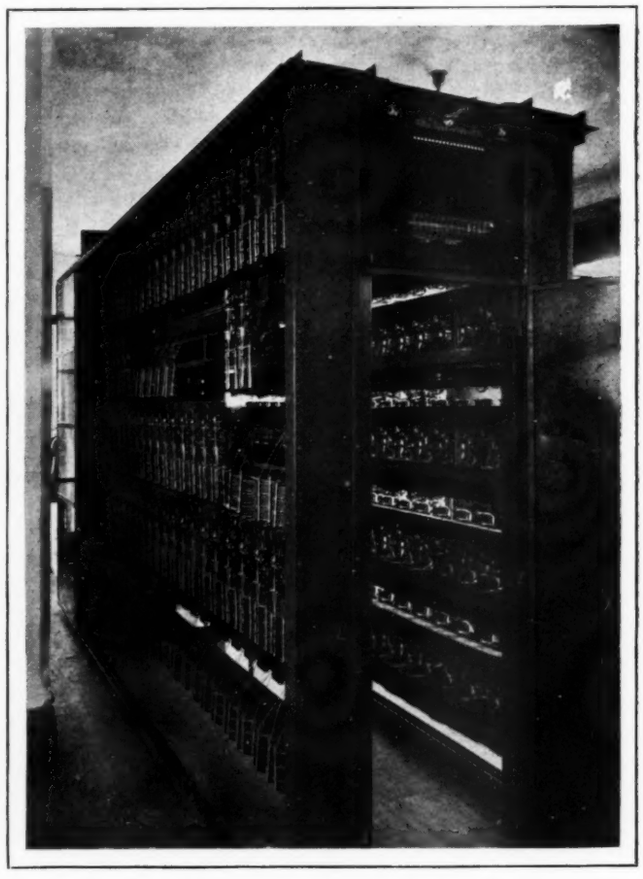
Rear View of the Power Board, Showing the Mercury Arc Rectifier.

side exchanges have been built from time to time, others have been purchased, and the necessary toll lines to connect the different parts of the system have been constructed. The company now has 80 exchanges in operation, with 27,000 subscribers, 4,000 miles of metallic toll circuits, and has traffic arrangements with the other Independent telephone companies in the state and neighboring states, so that first-class long distance connections are made with 115,000 Independent subscribers in lower Michigan, 328,000 in Ohio and 213,000 in Indiana.

The officers of the company are: Chas. F. Rood, president; Edward Fitzgerald, vice-president; E. B. Fisher, secretary; Wm. J. Stuart, treasurer. These with Philip Graham, R. D. Graham, C. E. Perkins, L. J. Rindge, J. B. Martin, J. B. Ware and Gaius W. Perkins constitute the board of directors. In active management are E. B. Fisher, secretary; C. E. Tarte, general manager; Albert Stacey, superintendent of construction, and Harry H. Ide, superintendent of equipment.

How the Rural Telephone Pays for Itself.

A Kansas newspaper says: "Stafford is the center of a big telephone system. Over 750 country telephones are tributary to that city. This indicates the breadth of their travel. A farmer generally trades with the town from



The Frequency and Second Selectors.

which he gets his news. It is equally true that trade follows the telephone wires as that it follows the flag. The farmer finds out the price of produce before he leaves home. If the hog market is up, he soon knows it, and forthwith he takes to the city with the porkers. Recently wheat popped up to $1.05 a bushel. The man with the grain was in touch with the elevators and hundreds of wagons were headed toward Stafford, ready to get the big price for the grain. The telephones told the tale, and the farmer hauled the wheat and added another substantial deposit to his credit at the bank. Stafford is greatly benefited by the close touch her merchants have with the farmers of the surrounding county that is possible only with a modern telephone service."

A Full Selective Rural Service

By Robert L. Parker

A few years ago farm life possessed many of the elements of solitary confinement, and this unhappy condition would have continued indefinitely, in spite of the spring wagon, the family carriage, and, finally, the automobile, had it not been for the happy event of the rural telephone.

At first a toy, the farmer played with it, his wife amused herself with it, and the children plum "went crazy" over it. It was a toy the grown man did not have when a child, so he threw aside the dignity that belongs to the head of the family and had another frolic. It was a most wonderful thing, and he was willing to pay his dollar a month just for the fun of having it. Twenty-five or thirty-five on a line, the more the merrier, was the farmer's idea at first. Occasionally he would brace up and refer to its utility, but it was the fun that appealed to him. The whole family fell in love with it. Love is blind, so they loved its faults as well as its good qualities. They liked the incessant jingling of the bells; they made sport of the interrupted service; they enjoyed the neighborhood scandals which it brought; the poor transmission and the forty other draw-backs of the bridging party line were overlooked. It may be a strange code of etiquette that would actually defend eavesdropping, but they defended eavesdropping in defending their beloved telephone. This explains why so many farmers can be found who, at first thought, say they do not want a strictly private service. Not believing that a secret, high grade party line service is practicable, they cling to the old system.

For a long time the farmer refused to look upon the rural telephone as a public utility. To him it partook of the nature of a luxury. The farming community had no clearly defined conception of its function in their industrial world, and often mutual farm lines which furnished a generally unreliable service resulted. Local merchants contributed funds to assist in building the farmers' lines; those who labored on line construction made no charge for their services; the time and labor of officers and repairmen were free contributions. The farmer even contended that rural telephone lines should not be assessed for the purpose of taxation. In central Iowa, an association of mutual farmers' companies known as the Marshall, Grundy, Hardin, Franklin, Story, Hamilton, etc., etc., Counties Telephone Association, has a provision in its constitution and by-laws forbidding the different companies in the organization to keep books or connect with any commercial companies. Very few rural companies incorporated, and those which did so simply filed their articles of incorporation, and failed to issue certificates of stock, and conform to the laws governing corporations.

Now the attitude of the modern farmer toward the telephone is undergoing a radical change. The intrinsic value of good rural telephone service has increased with the rise in the price of farm products, and the rise in land values. In fact the latter values would seem to determine the former. In his business, the farmer is beginning to demand as efficient and reliable service as is required in other lines of industry. Once the farmer discovers that he can have a service at his farm equal in quality to that rendered the merchant in the city, he is willing to pay the increased price necessary to produce it. The perfection of the selective lockout party line makes it possible for him to have what he needs, in that it supplies him a prompt, reliable, private and uninterrupted service. The telephone company can now use better construction on rural lines than formerly, knowing that the rural patron will pay a price which will justify the heavier investment.

The value of privacy in all classes of telephone service is self evident, but the question arises: Does the farmer realize its value, and, if so, is he able and willing to pay the increased rate necessary to produce a fair revenue on the additional construction cost necessary to secure it? The real economic value of telephone service is becoming evident to the farmer, and he has come to realize that his needs have outgrown the possibilities of the system now in general use; hence the more progressive are demanding a reduction of the number of stations per line, and in many cases, individual line service. This demand arises not so much from busy lines as from a desire for greater reliability, and privacy It has found expression in the adoption of various devices, such as divided circuits, selective four and eight party signaling systems and, finally, the full selective system. That full selective, or secret lockout service, is popular is shown beyond doubt by the fact that, out of over three hundred families using this system on rural lines, who were questioned concerning it by the writer, only one woman preferred the ordinary party line service previously in use. It developed, however, that this woman had been such a nuisance on the old bridged line that she had been largely responsible for the adoption of the more modern secret service.

The introduction of the lockout party line telephone heralds a better day for the telephone fraternity, especially in the smaller exchanges. Although the lockout instrument is simplicity simplified to the man capable of comprehending electrical circuits, yet the man who does not know circuits cannot handle a lockout system. The bungler who is everywhere butting into telephone work can't go up against this game. These men are an imposition on the public, and the cause of financial loss to the stockholders of the telephone companies. They are not electricians, but they hold the electrician's job.

At a meeting of the directors of a farmers' mutual telephone company in a small Iowa town, the question of employing a competent troubleman was being discussed. One farmer director pointed out the foolishness of employing an electrician, as any one could do the work. "Why," he said, "there's only two ways to do it, the right way and the wrong way, and if you get it wrong, change it."

On a good selective lockout system, every telephone is an efficient toll station, because whenever a toll or long distance message originates or terminates at one of the telephones, the circuit between the switchboard and the subscriber station is a properly balanced, full metallic circuit, across which there are no receivers, bell coils or other shunts. Other parties on the line cannot interrupt the conversation. The farmer's telephone thus becomes an efficient part of the long distance circuit. With its universal adoption, for party line work, a large volume of additional long distance traffic will originate and terminate at farm telephones. This will result naturally from the increased talking efficiency of this system, its freedom from interruption as mentioned above, and, further, from the complete control at the central office. For instance—a person on the party line gives a long distance call; after the usual amount of effort, the operator gets the party at the distant point. In the meantime, two patrons on the line are talking. With an ordinary bridged line, it is impossible to clear the line and signal the desired patron. It always causes delay, and

the long toll line, representing thousands of dollars of invested capital, is rendered impotent because of lack of control of an insignificant branch line. If one of the links in the connection is broken, there not only is lost the time already spent in waiting, but the labor of the operators all along the line must be repeated, while even then the call may be lost altogether.

A selective lockout system is a republican institution; it centralizes power and fixes responsibility. The operator has control of the line at all times. She can give the line to those who are entitled to it, and take it from any who abuse it. No longer is the boy with a graphophone able to monopolize the line for two solid hours, or the fellow with a "glorious jag" allowed to disorganize the telephone service of a whole community. The voluminous talker can be limited to five minutes. In fact, with the operator in absolute control of the line, she is responsible for the quality of the service. There is no alternative for her but to assume this responsibility, and conduct herself accordingly. To this the operator does not object. The facilities at hand for rendering a high-class service to party line patrons leave no occasion for evading the responsibility. The best interests of both patron and company are alike conserved by placing the complete control of the line in the hands of a responsible agent or operator.

It is evident that one result of lockout service on party lines is a reduction of battery expense. The life of a dry cell battery on the ordinary town residence telephone is probably double the life of a similar cell on a rural bridging line. Rural lockout service, being strictly private, requires a battery consumption about the same as the town residence telephone. To double the average life of a dry cell battery on a rural telephone means more of a saving than simply one-half of the money paid for new batteries; it saves half of the heavy expense of long drives to make renewals. Many bridging line patrons have so much rubber in their composition that the batteries on their instrument have to be renewed about every two months. Heavy battery expense is not the only difficulty in such cases, because the constant feeding of battery current through the transmitter deteriorates the carbon electrodes, and carbon granules to such an extent as to ruin the transmitter in a comparatively short time. These troubles, under some systems, are remedied in full selective working, as the battery circuit is always open except when a conversation is being carried on over the line.

A consideration of great importance in party line work is the incoming signal. A large percentage of the complaints made by patrons originate through the failure to get central, due, in most cases, to the failure of the switchboard drop. Under normal conditions the party line magneto telephone will send in a fairly good signal, but on farmers' lines, as they actually exist, with bells, receivers and partial "shorts" across the line, the incoming signal is often a complete failure. In this respect the lockout signal is much more reliable. Twenty volts of battery operate the drop armature with a vigorous and reliable click, even on long lines. These signals are much less annoying at the switchboard than the code signals of a magneto party line.

Moreover, central battery for signaling, because of the opportunity it presents for lamp supervision, marks an advance in rural line operating. By feeding supervisory battery through the cord circuits and lamp relays, the operator supervises the calls of rural patrons without listening in, the lamps indicating when the rural patron removes the receiver from the hook. It is obvious that under these conditions, as compared with operating on bridging lines where the operator must keep working the listening keys, a better class of service can be rendered. With lamp supervision, there is no occasion for operators listening to conversations. The company may forbid its employees from eavesdropping, and avoid the danger of damage suits arising when operators concern themselves with the private affairs of their patrons. In the small exchange a monitor tap from the operator's circuit to the manager's desk, and residence, will facilitate the enforcement of this regulation, and also improve the service in other ways.

Another commendable feature of the system under discussion is the fact that the operator handles all calls. On a magneto system, parties on the same line may ring each other, a practice which results in much confusion. The selective method, with the operator in control, proves more satisfactory to both patron and company. The removal of the receiver from the hook automatically and instantaneously signals central. No need of repeating the signal or making long, tedious rings. These signals cannot fail to attract the attention of the operator and there is no danger of hang-ups. The patron with a succession of calls to be made may retain the attention of the operator through her lamp supervision, while he rushes his call through. There is an increased certainty that he will get all the parties wanted, and much time will be saved because of the more immediate response of each party called, due to the fact that a called patron knows he is wanted as soon as the bell begins to ring, not waiting for the completed signal. A stop watch test on a large number of calls showed that the average length of time consumed between the beginning of the call and the subscriber answering was only 7.7 seconds.

In summarizing the advantages of an up-to-date selective system it might be said that it embodies all the advantages aimed at by the various devices, such as central selective signaling, push button or divided circuit telephones, four and eight-party selective ringing, either common battery or magneto, with the addition of many economies, complete central control and perfect secrecy. Our experience is that, whatever the conditions may have been in the past, the modern farmer wants this service in his business, and his wife approves its exclusive features.

PUNCTURED.

By L. Dwight Barrows.

Jimmy Jones and Johnny Smith
Went to put a 'phone in.
The lady said, "Be careful now,
I do not want that thrown in.

"I want it in the dining room
Just about so high,
And don't you scar that hardwood floor
Unless you wish to die."

So Johnny went down cellar
And took his great long awl.
He thought he knew right where to bore
To come out near the wall.

And Jimmy crouched upon the floor
To watch the spot where he
Expected John to bore up through,
But no awl could he see.

He called to John, "Why don't you bore,
I can't sit here all day,"
And John replied, "I'm boring now,
The awl is on its way.

Jim said, "I cannot see it,"
Said John, "Now take a glance,"
Just then the awl came through the floor,
And ripped through Jimmy's pants.

For John had missed his reckoning
By several feet or more.
Instead of boring near the wall
'Twas way out in the floor.

They patched the floor as best they could,
(It wasn't such a botch).
But when John went to bore again
Jim said, "I'll stand and watch."

The Development Study*

By S. D. Levings

As was explained under "preliminary work in the office," there are two ways of entering the data obtained from the "house count" upon the atlas map or in the books. One is to indicate the number and class of all possibilities, in the manner just described; the other is to show the relative locations in the block of the various possibilities. When the location method is to be used, the method of entering the data upon the atlas map, or the field books is shown in Fig. 6. From this diagram it will be seen that the vacant property can be readily distinguished, and that, for the purpose of locating the various portions of the distributing plant, the locations as indicated are sufficiently accurate. After having determined the present possibilities, and properly entering them upon the records, the ultimate number of possibilities to be expected in each subdivision must be estimated. The accompanying illustrations show several typical examples of various possibilities, as determined by the preceding methods and assumptions.

The matter of future estimates is a very important one, and makes by no means an easy problem. It is evident that the first step, in estimating future possibilities, is to determine the ultimate number of telephones which can be expected from the area in question. The vacant properties are first considered, and an estimate is made of what they will contain in the way of buildings, and what service will be required in such new buildings. The general character of the buildings now present in the area must be carefully considered, and it is usually safe to assume that, in the future, at least as good buildings as the majority of the present ones will be erected, and will require service according to their class. In the example just taken, it is seen that there are five vacant lots. In looking over the present possibilities, the majority of the buildings seem to be in the "A' and "B" classes, and it is therefore safe to assume that future buildings will also be in these two classes. It would hardly be logical, however, to assume that all five of the future buildings would be in class "A," so some method of proportioning off the future possibilities must be deduced. The general rule for this proportion that that futures shall be estimated in the same proportion that the two highest classes of present possibilities are to each other. In this case, the "A" and "B" classes are the highest, and are equal to each other in number, so we apply this proportion to the five vacant lots, and put three of them in the "A" class and two of them in the "B" class. When this is done, the block is said to be saturated. That is, all property is occupied, and every possibility has been accounted for. There is yet another matter which enters into the future estimate of possibilities, and a very important one. We have taken the life of the development study as 20 years and, in estimating present possibilities, we must be sure that they will be in existence for the next twenty years. This is a very broad question, and cannot be accurately determined in any case, but we assume the longevity of the present possibilities from the character of the construction of the buildings in which they are expected.

Let it be assumed that the block taken in the example is going to change its characteristics during the next twenty years, on account of the physical conditions of the dwellings in some parts of it, and that we have determined by inspection which of these dwellings will be replaced. Owing to the fact that they will be replaced, they will in all probability be in the "C" or "D" class in the present estimate, but when they are rebuilt they will be of such a character as to require a better grade of service. So it is seen that the future estimate must be based on the replacements as

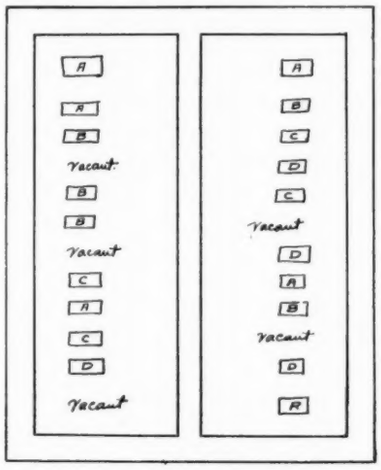


Fig. 6.—Data Placed on Atlas Map or Field Book by Men in the Field Using the Location Method.

well as on the vacant property. In the block taken as an example, assume that two of the "C" and two of the "D" houses are in such a condition that they will need replacing in the next twenty years. The problem is to determine the class of service the new buildings will require. This figure is arrived at, in the same way as were the future possibilities on vacant property, namely by applying the ratio existing between the two highest classes of present possibilities. It has been shown that in this case the ratio is equal, and applying it to the replacements, it is determined that two of them will be in the "A," and two in the "B" class. Having estimated the saturated condition of the block, a comparison of the development figures as expressed in terms of symbols, indicates the change that may be expected during the life of the study and, in the case in point, this comparison is as follows:

Present Possibilities.	Ultimate Possibilities.
5-A	10-A
5-B	9-B
4-C	2-C
4-D	2-D
1-R	1-R

In the example just taken, a territory involving dwellings only has been considered, and such a territory is, possibly, the most simple example that could be selected to illustrate the methods by which the present possibilities are obtained, and the method used to determine the future ones. The problem of field work becomes more difficult as the business district is approached, or where apartment house territory is encountered. In most towns, the various districts which contain the business, dwelling, and apartment houses are well defined by certain lines, and a great many times these districts are given special names which signify, when one is familiar with the town, that a certain class of structures may be encountered in that particular territory. When a district involving many apartment houses is encountered, the assumptions made to determine the future possibilities, i. e., the saturated condition, are somewhat different from those used in the strictly individual residence, or strictly

*Continued from issue of March 27, 1909.

business district, all of which assumptions, however, are based upon the same general principles. As in the case of the residential territory taken in the former example, the vacant property in the apartment house territory must be noted. It is assumed that such vacant property will contain buildings similar to those now surrounding it, and of an equivalent telephone value. The work of obtaining the number of present possibilities in such a district is no more difficult than in a strictly individual residence portion, as it simply involves a careful count of all apartments, and the placing of such in their proper class in the field notes. When estimating the future possibilities in territories involving the apartment house condition, the general character of present buildings must be noted, their average height, numbers of apartments per building, or in some other unit, and the general class of such buildings. A study of apartment district conditions has resulted in the formulating of a rule for estimating future possibilities. This rule is simple, and will be applicable in most cases. The rule is: Allow three apartments for each 25 front feet of vacant property, or property it is thought will ultimately contain apartment buildings. This rule has its foundation on the fact that the average apartment building, outside of New York City, is but three stories in height, and that 25 feet is required for each apartment, including the walls of the building. The application of this rule, then, will give a reliable basis upon which to estimate apartment building futures, in the absence of more accurate information.

In entering this information on the atlas map, or in the field books, when the location method is not used, special note should be made of all large buildings containing a large number of apartments showing their approximate location, as such information often determines the manner in which the wires are to be distributed in furnishing service for the building and saves a second inspection in preliminary plan work. In entering data in the business district, the location method should always be used for the reason just stated.

When inspecting the business district for present and ultimate possibilities, several features must be taken into account, which are not common to any other district. As in the case of apartment house inspection, the average height of the office buildings, number of offices per floor, and any other special features should be noted. From the height and number of offices per floor, a constant can be worked out that will represent the number of offices per unit of front feet. In estimating future possibilities in the business district, this constant plus 25% is used. Owing to the advance in the building art, and to the ever increasing value of business district property in most towns, higher buildings will be constructed in the future, than have been in the past. The 25% that is added to the constant, is expected to care for this increased height of future structures. A confusing condition often presents itself, when inspecting office buildings. It is that, a great many times, more than one office is served by a single line, owing to the offices being used in suites. It would seem that this condition should change the number of possibilities for the present estimate, but, owing to the population of office buildings being a floating one, it is never known when the rooms at present comprising a suite are to be separated. Consequently each room must be considered as a possibility in order that the maximum number may be provided for. In connection with the suite condition, the arrangement of offices in suites will sometimes be such as to require private branch exchange service (P. B. X. service), and this would again lead to a reduction of the present possibilities, if calculated in the manner used for P. B. X. requirements. However, in this case, as in the former one, each office should be considered as a possibility. An example of the arrangement of offices usually requiring P. B. X. service, is commonly encountered where several physicians or dentists use the same reception room. In this case, many times, a small P. B. X. is installed and is operated by the person in attendance in the reception room.

Care should be exercised in estimating present requirements for buildings occupied solely by a single firm. Take, as an example, a wholesale drug house. Such a firm may occupy an eight-story building, but have need for but one or two telephones, as the greater portion of the building is used for storage purposes, where telephone service of any kind is not generally needed. Again, take the example of the department store. The building may be six or eight stories in height, and have 30 or 40 departments, each of which requires telephone service. It is improbable that central office service would be desired for each of these 30 or 40 telephones in the building, mainly owing to the cost of such service, and it is therefore assumed that a building used for such purposes, will require P. B. X. service. The subject in hand is not concerned, for the present, with any part of the P. B. X. system, except in estimating the trunk lines required to furnish the desired service between the P. B. X. and the central office. There must be some way of estimating the trunk requirements of P. B. X. systems in general, and a rule has been formulated, based upon average conditions. This rule is:

Allow one trunk line to the central office for each five telephones needed for local service within, or closely adjacent to the building, and operated from the P. B. X. Owing to the numerous things to be considered when inspecting the business district, it is recommended that the inspectors be especially instructed in this work, and that those assigned to such districts shall be restricted to them until the field work in the business portion of the town is completed. In making the preliminary conduit plant plans, the question of paving many times influences the choice of routes, and the preliminary plan work can be carried out with greater speed and efficiency, if the pavements of the various streets are known without the necessity of a special inspection. For this reason, the inspectors should be instructed to note, in their field records, the pavements of all streets they traverse.

(To be continued.)

Introducing the New Operator.

The following clipping, sent in by Mr. E. E. St. Clair, of Downing, Missouri, shows how the telephone items go the rounds of local papers:

"Mrs. Mustard is the new telephone operator at Troy, Iowa. Smart? Of course.—Keokuk Gate-City. This ought to mean a spicy service.—Keosauqua Republican. She sure is a hot one.—Bloomfield Democrat. No doubt will draw business.—Lancaster Excelsior. She'll blister the guy who wants to know if 'that clock's right,' no doubt.—Downing (Mo.) News."

Collections by Wire.

A student listening on a nickel service position with an operator who wore a chatelaine bag attached to her belt, upon being questioned by the operator as to whether she understood how to deposit the nickel, said, "Yes, I do; but I cannot understand how the nickels drop into your bag."—*Operating Bulletin.*

Tried and Fined by Telephone.

Because Joseph Kwitkowski, of South Bend, Ind., who was charged with maintaining a slot machine, was too busy to appear before Justice J. W. Kitch, he pleaded guilty over a telephone and received a fine of $25.50.

Specific vs. Ad Valorem Taxation*

By N. C. Kingsbury

President Michigan State Telephone Company

We have now seen what our problem is in Michigan with regard to telephone companies. We have touched upon the difficulties inherent in the general property tax and the advantages inherent in the specific tax.

Let us now glance for a moment at the condition of administration of the general property tax in the State of Michigan, as controlled by the laws of the State.

The constitution of the State directs that

"The legislature shall provide by law a uniform rule of taxation, except on property paying specific taxes, and taxes shall be levied on such property as shall be prescribed by law: Provided, That the legislature shall provide by law a uniform rule of taxation for such property as shall be assessed by a state board of assessors, and the rate of taxation on such property shall be the rate which the state board of assessors shall ascertain and determine is the average rate levied upon other property upon which ad valorem taxes are assessed for state, county, township, school and municipal purposes.

"The legislature may by law impose specific taxes, which shall be uniform upon the classes upon which they operate.

"The legislature may provide by law for the assessment at its true cash value by a state board of assessors, of which the governor shall be *ex-officio* a member, of the property of corporations and the property, by whomsoever owned, operated or conducted, engaged in the business of transporting passengers and freight, transporting property by express, operating any union station or depot, transmitting messages by telephone or telegraph, loaning cars, operating refrigerator cars, fast freight lines or other car lines and running or operating cars in any manner upon railroads, or engaged in any other public service business; and for the levy and collection of taxes thereon.

"All assessments hereafter authorized shall be on property at its cash value."

The above sections comprise the fundamental law of the State on the subject of taxation, as prescribed in the constitution.

The legislature from time to time has enacted many laws relating to the subject, but one with which we have most to do and which it seems necessary to discuss at the present time is that law which places upon the State Board of Assessors two important duties. First, to determine the value at which certain properties enumerated in the law shall be assessed, and second, to determine the rate of taxes to be levied upon those properties. The constitution provides, as we have seen, that the State Board of Assessors has no discretion in the matter of valuation. It is its duty to arrive as nearly as possible at the true cash value of the property to be taxed. So much for the first duty. The second duty, that of arriving at the rate of taxation, is somewhat more complicated, but may be described briefly as follows:

First. The aggregate amount of ad valorem taxes assessed for state, county, township, school and municipal purposes for the year is ascertained, and this sum then divided by the aggregate value of other property upon which ad valorem taxes are assessed throughout the State. In other words, the dividend is the amount of taxes to be raised. The divisor is the value of the property assessed, and the quotient resulting from the operation is the rate of taxation to be applied upon the companies whose property for taxation purposes comes under the jurisdiction of the State Board of Assessors.

We can assume for the sake of this argument that the dividend in this calculation is a fixed quantity. We cannot presume to criticize in any way or to question the aggregate amount of the taxes necessary to be raised to defray the expenses of the state, county and the municipalities, but when we look at the divisor used in this calculation, at that point our rights appear—those rights which are given us under the constitution of the State and under the laws of the State. What are those rights? Simply this. That because the amount of this divisor determines the rate of our taxation as a matter of common justice, the valuations which added together make up the amount of this divisor should be based upon the same ratio of values that the valuation of our property is based upon by the State Board of Assessors. In other words, we have a right to expect and to demand that the local assessors throughout the State shall be actuated by the same motives, and shall use the same basis of valuations and have the same judgment as the State Board of Assessors in fixing our values, and as we have seen before in this discussion, such is by no means the fact, and just at this point is the crux of the whole proposition.

If some method can be devised by this legislature whereby the local assessors throughout this State will come anywhere near returning property at its full value, we shall have nothing whatever to say as regards the injustice of the ad valorem tax as applied to our property. But so long as the local assessors disregard absolutely the real value of property in making their returns, we certainly feel that it is not only unjust, but impolitic, to subject us to an unfair discriminating rate of taxation. If this committee will have inserted in this law a provision whereby the State Board of Assessors can arrive at a just estimate of the aggregate value of property of this State, our opposition to this bill will cease immediately. But I apprehend that if such a provision should be inserted in this act and the act should pass, it would straightway be declared unconstitutional, and indeed an attempt in that direction was made in the passage of the so-called Galbraith law in 1905. At that time, an attempt was made to permit the State Board of Assessors to disregard the aggregate valuation of property in the State as returned by the local assessors, and to make up their opinion independent of the local assessors as to the real value of the property in the State of Michigan, and to use this real value of the property in the State as the divisor in calculating what the rate of taxation should be.

You doubtless remember the history of that litigation. It is not necessary to repeat it here. Suffice it to say that finally the Supreme Court of the United States held that under the constitution there was no legal method for ascertaining the true value of property in the State of Michigan so far as the State Board of Assessors was concerned other than to add together the returns of the local assessors throughout the State.

Does any one for a moment contend that the local assessors throughout this State returned property at its full valuation? If so, this law is a just law, and we do wrong to oppose coming within its provisions, but if the local assessors do not return property at its full valuation, then it is

*Abstract of an address before a committee of the Michigan Legislature. Concluded from issue of March 20.

not a just law, and it is our duty to escape its provisions, if possible to do so.

The Board of State Tax Commissioners and State Board of Assessors have been shorn of their power to equalize the valuation, and thus to equalize the tax. In the State of Wisconsin where railways and other public service corporations are taxed on the ad valorem basis, the State Board of Assessors is given the authority and is charged with the duty of determining the true value of the property in the State of Wisconsin independent of the valuation on which it is returned by local assessors, and what difference does this make with the tax? In the year 1905 the tax rate of railroads in the State of Wisconsin, which was determined by using the value of property as fixed by the State Board of Assessment as $11.27 per thousand, while the average rate based on local assessment for the same year would have been $16.10 per thousand. Applying such a discrepancy to the telephone properties in this State on something like a fair valuation, the difference in tax paid by those companies would amount to over $100,000. You may answer that that would be a very good thing for the State to increase revenue of $100,000 from telephone companies, and if you will assume that the affairs of this State are to be conducted without reference as to what is right or just, then I will agree with you, but I cannot believe that this legislature or any members of it desire any injustice done these companies.

In the State of Minnesota these propositions have been very thoroughly discussed and considered by the Tax Commissioners. Their conclusion has been that the specific tax applied to such properties as telephone properties is the only rational right and equitable way, and after much study that Commission has not only approved the plan of specific taxation on such properties, but has recommended that the plan be enlarged and extended through other properties of similar nature.

The present condition of our State laws with respect to tax commission is far from satisfactory, even to the members of Commission itself, and in all its reports particular emphasis is laid upon the lack of power on the part of Commission under present laws to secure anything like revision of assessment or equality as between individuals and localities.

Under our present law there is no provision made for a general equalization of our property and other property in the State. The State Board of Assessors can only act upon such cases of under valuation or of property being omitted altogether from the rolls as are called to its attention specifically and by residence tax payers of the district where under valuation or failure to list the property actually occurs. There may in that same tax district be discovered by the State Tax Commissioners hundreds of other pieces of property against which no specific complaint has been made, which are still grossly undervalued, and the Tax Commissioners have absolutely no power or jurisdiction in the matter. Should it appear to the State Board of Tax Commissioners that the property in a certain tax district was all taxed far below its true value, there is no way under our laws by which such violation could be increased and brought within true provision of the constitution and the laws of the State.

Is it not a significant fact and one that should well make you pause before forcing any more companies under the action of such a law when you consider that the Commission which has to do with the administration of the law has been continually for years pointing out not only the injustice of the law, but the further fact that the Commission itself is without power to render justice as it appears to them. I beg leave to quote from an address delivered by Mr. Robt. H. Shields, Chairman of the Board of State Tax Commissioners of this State, before the Minnesota Academy of Social Science, Minneapolis, December 6, 1907. In discussing the valuation placed upon railroads in the State of Michigan by Professors Cooley and Adams, and after explaining the method of arriving at such valuation, Mr. Shields goes on to say:

"An analysis of this theory, therefore, discloses the fact that in reality two distinct methods are employed in valuing the same class of property. The method employed in valuing those ninety-seven railroads that did not earn a profit or, at least, that did not earn more than a fair profit, is the inventory plan pure and simple whereby the value was determined by an inventory of the physical elements only. While in the valuation of those twenty-six railroads earning more than a fair profit the capitalization of a portion of the net earnings followed by a further capitalization of the surplus net earnings is the method employed. This latter method, regardless of its mysterious appellation, is a tax based upon the net income. Here, then, we have two different methods of standards of valuation employed in valuing the same class of property, which is hardly in harmony with the constitution and laws of our State."

The pendulum of unequal taxation in Michigan, as far as the railroads are now concerned, has already pretty nearly swung the return limit, and a strict adherence to this theory in assessing Michigan railroads, considering the methods employed in assessing other property, would not only be a square deal, but would mean nothing more nor less than confiscation. The results obtained by this plan, however, are generally used for comparison to discredit the work of the State Board of Assessors.

In determining the amount of tax which shall be imposed upon corporate property, the question of method must always be subordinate to the other question of the equity of the result which follows it; and, other things being equal, preference should always be given to the most simple and effective method.

May I now direct your attention to a consideration of this question from the particular standpoint of the interest which I represent? I am not authorized or requested to represent any company except the Michigan State Telephone Company, but most of the remarks concerning the general telephone business will apply equally to all telephone companies and not with any special force to the Michigan State Telephone Company.

As a business, the telephone business is peculiar and unique. I believe there is no other class of business so young, so undeveloped, or with so many unsolved problems as the telephone business. It started but 30 years ago, and has had its great development within the last few years. We occupy the streets, alleys and public places of the State, and for that reason are subjected in a peculiar way to the control of the State and the local authorities; and there is no objection to this control, provided it is exercised intelligently and fairly, but it must ever be kept in mind by the authorities exercising control that the occupancy of these public places is a necessity in this business so long as the business is conducted along economic lines and in the real interest of the public. It is sometimes stated as a reason for imposing hard conditions upon telephone companies that they occupy the streets without direct compensation to the State or municipal governments, and those who would impose those conditions forget for the moment that the very existence of the telephone business on the present basis involves such free occupancy. If telephone companies were forced to purchase private rights of way, the investment involved would be so tremendous that the rates for telephone service would

be necessarily prohibitive, and this great public convenience —nay, public necessity—would fail in its development and would be of no use to the people at large.

Our property is a peculiar one and somewhat different from the property of any other public service corporation. The street railway has its trunk lines, to which the public go for transportation. The gas company has its mains in the streets of your cities, and the individual householder must connect up his individual plant and supply the line running to his house and the piping and fixtures of the house before he can secure the gas which the company has to sell. The electric light company runs its main lines throughout the city, but the individual householder, here again, must supply the wire for his own house and the fixtures before he can secure lights. The telephone company, on the other hand, provides the entire plant and equipment for its subscribers. Nothing is required of the subscriber except the payment for the service rendered. The plant is entirely built free of cost to the subscriber. If a subscriber moves from one residence to another, his telephone is moved without question, and in many cases, without exacting any payment from him. During the year 1908, I am well within the facts when I state that the expense involved in moving instruments of our subscribers in the State of Michigan amounted to nearly as much as the tax which we are paying.

The nature of our property is also very peculiar, and it is necessary for us to have constantly on hand, ready for instant use, a large amount of property in excess of that demanded at any particular time by our subscribers. For instance, suppose that a large building should be built in one of our principal cities. Take the erection of the Ford Building in Detroit. Now suppose we have no facilities to take care of several hundred subscribers who, by the erection of that building, were congested in a very small area on Griswold Street in Detroit. We should then have been forced to tear up Griswold Street, lay a conduit and a cable and extend the same to our Main Office. Instead of doing this we had our conduits already in place. They had been there waiting, I do not know how many years, for just such an improvement, so that it was only necessary to connect the wires in our switchboard at one end and with our subscribers' instruments throughout the building. I mention this instance to show you the absolute necessity for telephone companies at all times to keep their plant built away ahead of the present demands of their subscribers.

At the present time, in the State of Michigan, our Company has between 35 and 40 per cent of its physical plant unused, and therefore unproductive in the way of revenue or earnings, and this must always be true with any telephone company which is serving the public in the way it should. I want to call your particular attention to this fact of idle plant, as it forms one of the very strong reasons why our property should not be assessed, as most other property is assessed, on an ad valorem basis, but to rather be assessed on the specific basis, based on gross revenue.

There is also a peculiar fact connected with the telephone business, and that is that under ordinary conditions, in our towns and cities, the cost of giving telephone service to our subscribers increases disproportionately as the number of the subscribers increases, and so we have presented this economic anomaly, in that the greater the number of units served in any ordinary given exchange, the greater will be the cost of serving each unit.

This is true for a number of reasons. Where you have a comparatively small number of subscribers in an exchange the cost of the plant is not great; the construction is simple; the switchboard is inexpensive and easily maintained and does not require the services of an expert; the poles are small; the cables, if any, are also small; no underground construction is necessary. As the exchange increases in size these conditions change, and in course of time underground conduits, underground cables, multiple switchboards, power plants, supervisory apparatus of many kinds, and the employment of experts at a great rate of pay, all become necessary.

Together with this increased cost to the company, there occurs, of course, an increased value to the consumer, and so we find that in the smaller communities the rates are lower, and in the larger communities the rates are higher, but in all communities, whether large or small, the continual growth is making it increasingly difficult to maintain the present narrow margin between the aggregate amount received for service and the actual cost for giving that service; and the constant tendency in the business, therefore, is for decreased earnings as compared with increased investment.

You may ask me what all this has to do with this bill or with taxation. The answer is that we must consider these facts if we would tax property equally—if we would exact from each citizen or each corporation taxes in proportion to the ability to pay. The amount of property which one owns is no measure of his ability to pay taxes. One man may own a hundred acres of land in the Upper Peninsula of this State, which is absolutely unproductive, and another man may own a hundred acres of land in the vicinity of Lansing, which is wonderfully productive; and because they both own the same number of acres of land would you say that each should bear the same burden of taxes? A man may own a lot on Woodward Avenue in Detroit, and another lot in the village of Northfield. These lots may contain the same number of square feet, but you would hardly claim that he should pay the same taxes on the lot in Northfield that he pays on the lot on Woodward Avenue in Detroit. And why would you make a difference? Simply because in the one case there is earning power, and in the other case there is no earning power, or very little earning power. And thus we come back to the proposition that earning power must be considered in arriving at the amount of taxes that property should bear; and, as a matter of fact, earning power is considered, and is the only element that is taken into consideration, when we get right down to the true basis of facts in the valuation of property. What gives property value? Earning power and nothing else. And so I say we must consider this earning power in arriving at the basis of taxation on the property owned by telephone companies.

Now, just for a moment, let us see the point at which we have arrived. I have tried to make clear to you that we at least are willing to pay our fair share of the taxes of the State. We have attempted to show you that the general property tax as a measure of our fair share of the tax burden is impossible as now administered throughout the United States. I have quoted you the opinions of the best minds on this subject.

I have tried to show you that the specific tax is the most equitable tax which under present conditions can be levied upon public service corporations; and, in the support of that position, I have also quoted from State officials and students of the subject.

I have then tried to point out to you the peculiar difficulties in the administration of the ad valorem tax law in Michigan at the present time, and in the application of that law to the tax problem of those companies who are by the constitution placed under the authority of the State Board of Tax Commissioners. You have listened to quotations from the Tax Commissions and from Mr. Shields, criticising the law and asking that it be improved.

I have also tried to show you the peculiar disadvantages under which telephone companies in general labor, respecting their business and property.

Now, what shall we ask you to do in this question? Is it unreasonable for us to request that we be allowed to remain under the present law? Our charges to the public have been made with reference to the amount of our taxes. The margin between our aggregate cost and our aggregate returns from the business is so narrow that there is nothing left for the State to take in the way of taxes; and is it, therefore, not perfectly clear, should a large burden be added to the one we are already carrying, that we must ask the public in some measure at least to contribute more to our company, in order that we shall have more to contribute to the State? In the long run who pays the taxes? Is it not the subscriber to telephone service, especially in cases where no adequate return is being received on the investment?

From one point of view the telephone business is a mutual business. All of the money which a company receives must come from the public at large. There is no mystery concerning the source of the revenue of a telephone company. Each subscriber must pay his share for the support of the entire system, and if the aggregate paid by the individual subscribers is not sufficient to support the system only one of two things can happen. The system will either cease to exist, or it will demand a larger fee from its subscribers. We do not want at this time, gentlemen, to become tax collectors for the State. In many instances throughout this State our subscribers are paying all they can afford to pay for telephone service, and, should it be necessary for companies in general to increase their rates it would also be necessary for many of our subscribers and the subscribers of all other companies in the State to discontinue their service, and we should then be left with a large amount of plant, which had been built for these subscribers, entirely unused and divested of any earning power.

It is urged that some companies doing an interstate business and paying taxes under the specific law are not paying sufficient taxes because the interstate business is not considered as a portion of their earnings. There is a complete remedy for such a condition. It is well within the power of this legislature to include specifically the interstate earnings of such corporations, and I do not believe that the corporations would object to having such earnings so included. There may arise in your minds a question as to the constitutionality of including interstate earnings. If so, I have but to refer you to the statute of the State of Maine, which provides, in regard to railways, that their interstate earnings shall be considered as a portion of the earnings upon which their taxes are based, and this law of the State of Maine has been tested by the courts and has been declared constitutional by the U. S. Supreme Court.

I shall also say this, that, rather than go under a law which is so pernicious in principle and in fact as the ad valorem or general property tax law, in case after careful investigation by competent men it is decided that 3 per cent on our gross revenue does not constitute a fair and just proportion of the amount we should pay to this State towards the expenses of the State, so far as I am concerned I should much rather have the rate increased on the specific basis than to go to the uncertainty and the manifest inequality of the ad valorem tax.

I am aware that the side of this question which I have been debating is not the popular side. I am aware that statements are made in some quarters which would seem to indicate that we are trying to dodge our just share of the State expenses. I know that at the present day it is easy for the orator to gain applause by attacking the methods and attitudes of corporations; but I feel sure that you will agree with me that there are two sides to this question; that the statements which I have made are true statements, and that we are not trying to evade any just charge which the State may wish to put upon us. This question is not one of politics, but of economics; not one for discussion by the orator, but for careful consideration by the statesman and the financier. It must be figured out and decided at the desk, not on the rostrum.

The Telephone Girl as Seen at the Board.

The Ocala, Florida, *Star* has this to say on the subject of the telephone girls at the exchange of the Ocala Telephone Company. It is all so applicable to telephone girls and their dealing with the general public that TELEPHONY reprints the reporter's remarks in full:

"We had heard so much complaint by the public, and on general principles about the neglect or indifference of the operators at central that the Star reporter strolled into the exchange recently to note a few things for himself.

"The office now occupies the extreme southwest corner of the third floor of the Gary block. The room is, say 30x40. It is nicely furnished and in the corner is a lounge for the operators not on duty and its furnishings are in harmony with the work done. The instruments used are equal to any in the land and up-to-date in every particular.

"Those who manipulate the wires are Misses Lillie and Jettie McConn, Minnie Peterson, Lottie Moore, Susie Morris and Willie Odom, the latter working on the night shift.

"Now, we must confess to not having the patience of a saint or martyr, and there have been times when, because we didn't get service on the jump, or got the wrong number, or the voice of the 'hello' girl was indistinct, we did some hard thinking and breathed harder words and jumped around in out impatience as though we had landed on a hornet's nest and were receiving the hearty congratulations of the whole bunch.

"With this confession we are humble enough to admit that there are others with even less patience than ourself, who, upon calling central and not obtaining prompt reply, or when there is trouble in the air or on the wires, are ready to boil over and blaspheme the worthless hello girls, not giving a thought to what these meek, mild, sweetly patient girls are enduring and striving with all their saintly virtues to do for the public. These are the thoughts that came to us as we watched two of them for fifteen minutes, sitting heroically at their work and trying with all their souls to do it faithfully and conscientiously. Now, if the rapid, impatient and heedless users of the telephone will just visit the office and watch for ten minutes what the girls at central have to contend with, and how heroically they strive to do their duty to the public, they will have more respect for themselves. It will teach any one a lesson in patience and forbearance. It makes one feel like begging the girls' pardon for the mean, vindictive things said to them, that in a quiet and sane moment would have made the complainant blush.

"Knowledge of the tendency of humanity to fault-finding and losing one's temper if things do not go just as we wish it, induced this scribe to visit the telephone office and see a few things for himself. When we were there it was during the quiet hours of the day. How it would look in the morning when the air is fairly vibrating with calls, we leave it to you to imagine. Only this: Do you impotent and at times unreasonable mortals drop in and see how the telephone business is conducted and the exactions placed on the girls at central and our word, for it you will modify your impressions of the service you are getting—as good as any in the land."

The Telephone in the Courts

Conducted by A. H. McMillan

Advantages of Railway Commission Control.

This company has been a subscriber of your paper for a number of years. The writer has noted with much interest the various subjects handled and has accordingly decided to unbosom our little troubles to you for advice and suggestions:

In 1900 we bought a 33-mile telephone line and right-of-way from a railway company, at the same time entering into a contract as per copy attached, providing for free service for said railway company over and along its right-of-way, also with any exchange that we might connect with in a locality 20 miles beyond our terminus.

This arrangement worked well until January, 1908, when another company absorbed our connection, whereupon this company was forced to make a new contract with the superseding company, prorating the long-distance business on a mileage basis. The company refused us free traffic, which we had enjoyed prior to this time, for our railroad business over its lines, thus forcing us to pay mileage on everything it handled for us.

Conditions have changed. The railroad company's telephonic business continues to grow (especially over the free line) at an alarming rate; so much so, that we are exceedingly anxious to be relieved of it, particularly the part of the contract providing for free service beyond our terminus, or its right-of-way.

I have mentioned this case to one of our local attorneys and he does not think we can condemn the right-of-way under the usual condemnation procedure and thus nullify an existing contract. He informed me that we would have to first place our company under the jurisdiction of the state railway commission before we could institute condemnation proceedings. And right here for your convenience I shall number a few questions which I shall ask:

1. What steps are necessary to place our company under the state railway commission?
2. What advantage do we derive other than the right to condemn rights-of-way?
3. What disadvantages, if any, do we reap by so doing?
4. What does the railroad commission of our state require of us afterward?
5. Do you think we could successful condemn this right-of-way in view of the existing contract? It's a burden to us—a boon to the railway company.
6. Do you know of a similar case or decision in our state or elsewhere? If elsewhere, what is your opinion as to its application in our state?

Any information, suggestions, or references to similar cases will be appreciated.

Our only excuse for getting into such a box with this railroad company is that we were inexperienced in the business, and that the railroad company at the time had free service over its connecting line.

Our answers are numbered to correspond with your questions.

1. To place yourself under the jurisdiction of the railway commission it is necessary to file a written consent with the commission that it shall have jurisdiction over your company for the purpose of regulating the tolls charged on long distance messages originating and ending in the state, and the rents and tolls of intrastate business. This is undoubtedly done on blanks furnished by the commission.

2. There is no advantage so far as the Editor knows other than the right to condemn rights-of-way.

3. The disadvantage will be that the commission will have the authority to regulate your tolls and rentals.

4. What the commission will require of you afterwards depends largely on its discretion, caprice, and the complaints people make to it.

5. The existing contract would not prevent you from condemning or having some one else condemn the right-of-way. It might be successfully contended by the railroad that another right-of-way for telephone purposes was not a necessity. The contract would also be an obstacle in enabling the railroad company to contend that one condition precedent to condemnation proceedings, viz., failure to agree with the owner of the land sought to be acquired, did not exist. The only way we can see in which these objections could be obviated would be by your refusing to maintain and operate your present line upon the right-of-way any longer, so that the railroad company could terminate the contract, as provided therein, and repossess itself of the line upon payment to you of six hundred dollars. However, we anticipate that you might not want to yield possession of the line in the meantime.

6. We do not know of any similar case.

Crossing Virginia Railroads.

Is there any law in Virginia that will compel us to pay a railroad company a rental for the privilege of crossing tracks, or can it prevent our crossing if we refuse to pay the rental charge? We are building a farmers' line twelve miles out in the country and will have to cross the railroad company's tracks about half the distance. We applied to the railroad company for permission to cross, stating that we were willing to sign their regular form of contract, relieving it of all responsibility. Its reply stated that it would be necessary to pay a rental of $5.00 per year before we could cross; the proposed crossing being at a public road, we proceeded to string the wires anyway. The railroad company immediately had them cut down. What can we do in the matter?

The railroad company cannot lawfully charge you a rental for the privilege of crossing its tracks, nor can it prevent your crossing if you refuse to pay the rental demanded. The state law of Virginia (Acts of Assembly, 1906, 1294 L) gives you the right to use the highways of the state, the restriction as to railways being that your wires must be 23 feet over such crossings. If the railroad company illegally cut down your wires, you may recover damages. You may also restrain it by injunction proceedings from interfering with your crossing.

Care Required of Company in Inspecting Poles.

A white cedar pole that had been in place about six years fell with a lineman who had been sent to its top to cut wires. He kicked it with his spur before he went up to ascertain if it was sound, but, when he had reached its top and cut a lead of wires from it, it gave way with the result before stated. It was proved that the usual life of such poles was from 10 to 15 years. It had not been inspected by the company other than the superficial observation of the pole when it was erected. Its fall was caused by its rotten condition below the ground. The lineman sued the company and was given a judgment in the lower court, but this judgment was reversed on appeal by the Supreme Court of Texas, which held that the company was under no duty to inspect the pole. Said the court: "We know of no rule of law that imposes upon the master the duty of looking out for defects in objects with which the servants are working, where there is nothing to indicate that any such defect existed. To so hold would be to make the master the insurer of the safety of the servant absolutely."

Southwestern Tel. & Tel. Co. vs. Tucker, 114 S. W. 790.

When Use of Telephone Can Be Compelled by Competitor.

In the District Court of Brown County, Kansas, the Northeast Kansas Telephone Company brought suit against the Horton Mutual Company to compel the latter to install a telephone in the Northeast central office. The Mutual company refused on the ground that the Northeast company wanted to use the telephone for commercial purposes, and to transmit messages from one system to another, and thus save messenger fees. The court decided that if the Northeast company desired a telephone for ordinary use, the same as an individual, the Mutual company must install it, but as soon as it is discovered that the telephone is used for transmitting messages from one system to the other, the order will be revoked.

Practical Questions and Answers

Trouble on Secret Calling Party Line.

Being called to a neighboring telephone exchange to locate the trouble of a telephone ringing when push button was used to call central secretly, I found the following conditions, after taking all possible grounds from line.

The conditions referred to are shown in Figs. 1 and 2. Fig. 1 shows the way the substations and office were wired, and which caused false rings. The button in its normal position leaves the generator across the line, in which posi-

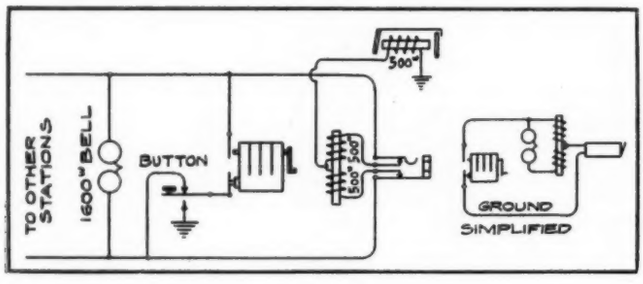


Fig. 1.

tion it can ring the bells, but not the drop at central. When pressed, the button disconnects one terminal of the generator from the line and connects it to ground. The ringing current to call the operator is expected to follow the tip wire to the jack, go through the tip inside contact, upper winding of the retardation coil, to the drop and ground, by which it returns to the generator. The simplified drawing shows why there are false rings. The bell is in part of a divided circuit and must get a portion of the current. Also there is a transformer action between the two windings of the retardation coil, which causes more current to flow through the bell than would flow if they were on separate cores.

Fig. 2 shows the way which the correspondent corrected the fault. The central office is unchanged. A more complicated button having five springs is used. Normally the generator is across the line as before. Pressing the button switches one terminal of the generator from tip line to ground (springs 1, 2, and 3) and short circuits the tip and sleeve lines (springs 4 and 5). This produces the conditions shown in the small simplified drawing. The bell is short circuited, so that it cannot ring. The two windings on the retardation coil are in parallel so that their mutual

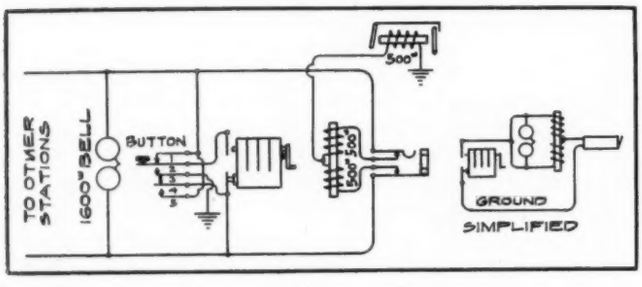


Fig. 2.

inductive relation makes them more nearly non-inductive than before. This scheme with slight modifications has been used very largely in recent years with excellent success.

Insulation of Metallic Circuits.

What should be the standard insulation resistance of a metallic circuit fifty miles long, clear of trees?

The test we use at present is to ground one side of 90 volt ringing current, and tap it first on one side and then on the other. If it causes the 1,000 ohm drop on the switchboard to fall, we hunt for the ground. Is this too severe a test for grounds for fifty mile metallic line?

Good toll lines ought to run several megohms insulation resistance per mile on each wire. Nothing less than one megohm per mile for the circuit (two megohms per mile) should be considered. Your method of testing deals with each side of the circuit separately. Two megohms per mile means 40,000 ohms for one wire of your fifty mile line. The resistance through which drops will operate varies greatly, but in no case will it impose too severe a test on your line at the voltage you mention. For instance, on test with one manufacturer's 500 ohm drop and 100 volts ringing current, the drop fell in the limit with 28,000 ohms in series. A 1,000 ohm drop of the same make would operate through greater resistance, but would not exceed a reasonable limit for your line.

Another Secret Calling Circuit.

What do you think of the enclosed circuit? It was designed to overcome unbalancing conditions in a farmers' party line. It may have been used before now, but I have never seen anything like it so far.

This circuit is reproduced in Fig. 3, omitting the subscriber's talking circuit, which has nothing to do with the ringing. We do not know of this plan having been used before. The button has six springs, and is of the plunger type. The hand generator is wired to the two main, or plunger springs, 2 and 5. The inside contacts, 3 and 4, are wired to the line, so that normally the generator is across

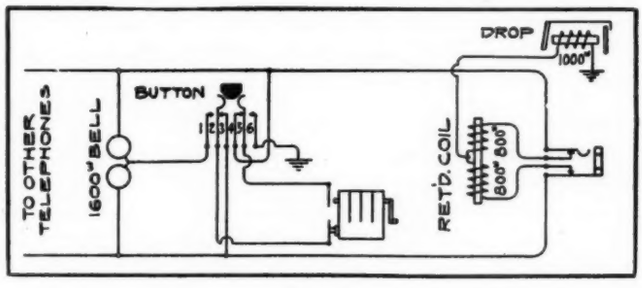


Fig. 3.

the line as in all bridging telephones. When pressed, plunger spring 5 switches one terminal of the generator to ground, while spring 2 switches the other terminal to the center of the bell. The ringing current will then divide, part going over each line wire to the line jack, where it comes together again at the center of the retardation coil and goes to ground through the drop, returning thus to the generator. Unlike other secret calling schemes, this depends entirely on the balancing of current between the two line wires to keep the bridged bells from ringing. The only advantage which this circuit possesses over the one above described is that while the button is pressed the line is not short-circuited. Malicious persons may find it possible to interfere with the conversations of others by pressing the button and holding it closed, thereby putting a dead short circuit on the line. But with this plan no short circuit can occur.

Size of Wire for Battery Night Lamp.

Will you tell me the size of wire to use for wiring up my night lamp? I am a night operator in a small telephone exchange and want to rig up a small battery lamp which I can snap on to make just enough light for me to see the drops. I have a 5.5 volt lamp and can have the use of a 6-volt battery, but the battery is fifty feet away. What size wire must I use to get the right current in my lamp? Also, how do you figure it?

No. 24 B. & S. gage wire will cut down the voltage so as to light your lamp safely. It is figured as follows:

Take the difference between the battery voltage and the lamp voltage, 6 — 5.5 = .5 volt. Look up the current required by the lamp, which will be about .23 ampere. Your lead wires will be 100 ft. long, counting both wires, and must have enough resistance to absorb half a volt when .23 ampere is flowing through them. $R = \frac{E}{I}$, so that $\frac{.5}{.23}$ = 2.17 ohms. If 100 ft. has 2.17 ohms resistance, the resistance per 1,000 ft. will be 21.7 ohms. Look in the wire table for wire which has as nearly this resistance as possible. No. 23 is the nearest, with 20.57 ohms. But the odd sizes are hard to get, so No. 24 is the choice. It will limit the current to a little lower than .23 ampere, but probably not enough to dim the light.

LETTERS ON PRACTICAL SUBJECTS

Troubles of the Troubleman.

Gus Riley was a trouble shooter and, although he had been at it several years, the following shows that he still retained his Irish wit. One day he was sent to inspect a telephone which had been reported out of order. The subscriber followed him to the telephone to see what he would find. As Gus opened up the door of the telephone they noticed something drop, and both stooped to see what it was. They discovered that it used to be a cockroach, and Gus said: "No wonder yer tellifone didn't work—the engineer was dead!"

To call "Information" on the automatic telephone system in Tacoma it is necessary to turn the dial around to A-9. In order to please all the subscribers it has been humorously suggested that the Germans call 9-9, the ministers B-9, and all the dogs K-9.

Tacoma, Wash. C. A. SWOYER.

Sleet Damage in the Mohawk Valley.

The statement has often been made that no two people think exactly alike, yet I am of the opinion that the thoughts of all telephone men in the Mohawk Valley, in New York State, were exactly alike on the morning of February 17, 1909.

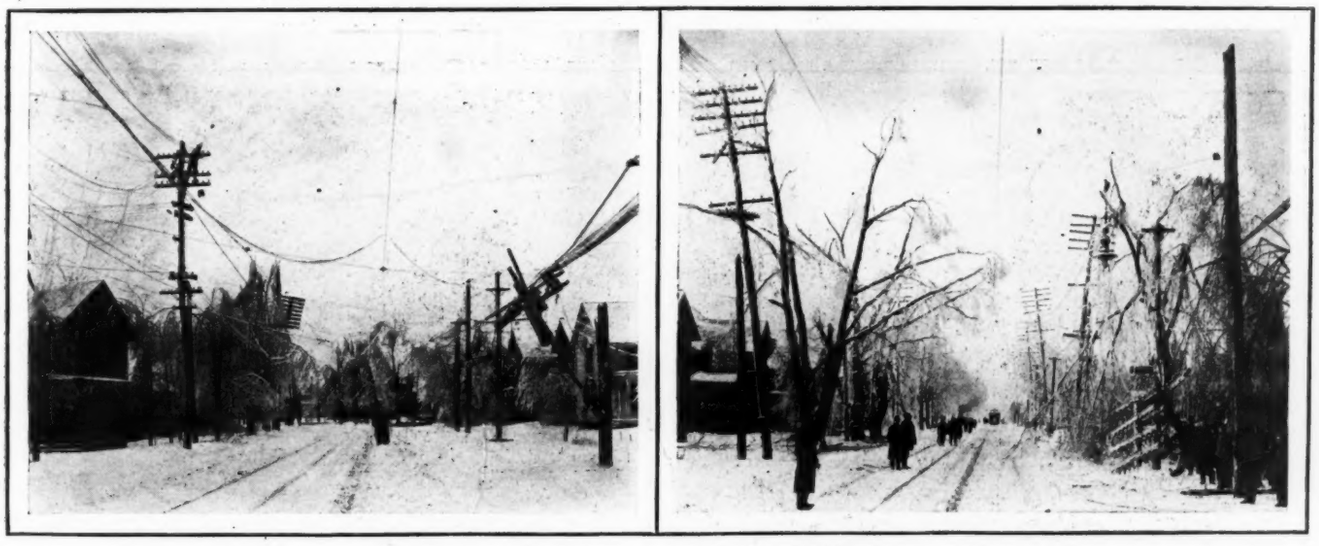
On the day and night previous to February 17, the worst sleet and ice storm in the history of that section visited Utica, N. Y., and the surrounding territory, the center of the storm and the heaviest loss being at Herkimer, N. Y., a town of five thousand five hundred inhabitants, fifteen miles east of Utica, on the main line of the N. Y. C. & H. R. R. R.

The County (Independent) Telephone Company of that place has 575, and the Bell company has 334 local subscribers. On the morning after the storm, over three-fourths of the subscribers of both companies were "in trouble," and not a single farmer's line or toll line of either system was working. The Western Union, Postal Telegraph and the American Telephone & Telegraph companies had no wires working, and the N. Y. Central Railroad was operating trains by the block system altogether, as all the railroad wires were out of commission.

The two companies which suffered the greatest loss were the local Bell company, and the American Telephone & Telegraph Company. The American Telephone & Telegraph Company through this section has a 40-wire line, of Nos. 8 and 10 copper wire. This line was completely down, and poles broken in many places, the worst break being over the West Canada River, where the fixture on the east side of the river collapsed and everything went into the river. The local Bell company has a 50-wire line running between the villages of Herkimer and Mohawk. This line carries, in addition to the open wire, a 150-pair combination local and toll cable which was completely destroyed, the poles breaking and letting the whole lead over into the street and onto the trolley. Power was on, and the electrical display was nearly equal to the Chicago convention. The Independent company occupied the opposite side of the street from the Bell, with a 60-wire line, and strange as it may seem, not a single pole was broken, but the enormous weight of ice broke practically all of the wires and over half of the arms.

The accompanying illustrations are typical of the condition that existed in the Mohawk Valley on the day after the storm.

The first move to be made by the telephone companies was to hire every available lineman, detailing a few of the regular force with the best of the extra men on clearing the toll lines and establishing toll service over the toll lines, while other men, with large forces of ground men, cleared the streets of the villages and towns of the mass of wires and poles.



Some of the Telephone Poles, Cables and Wires Broken Down by the Weight of Sleet and Snow.

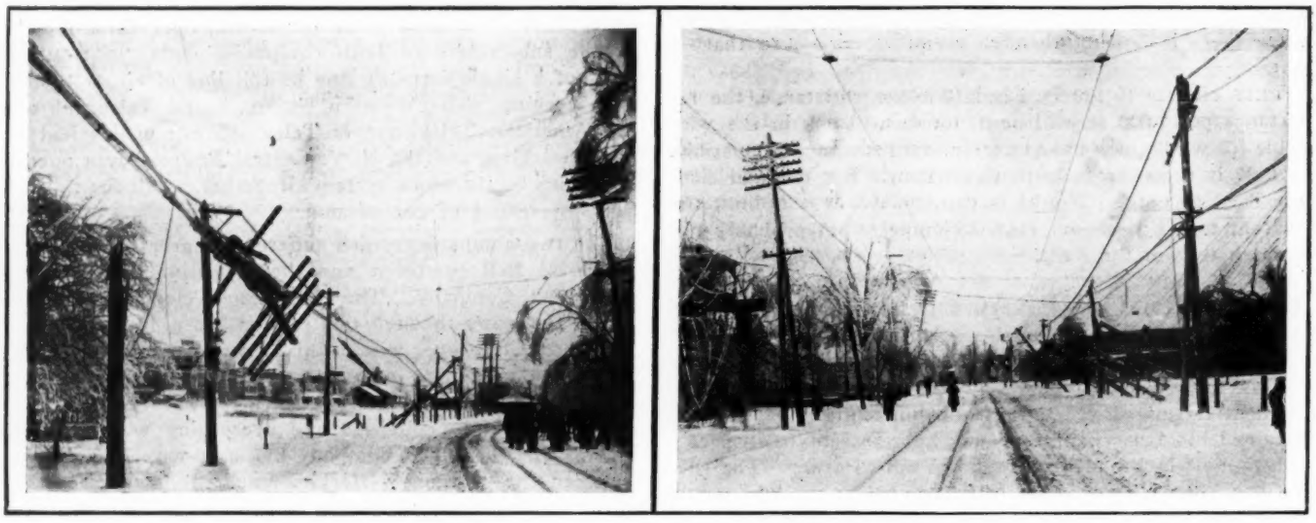
Notwithstanding the damage, toll service was established by both companies in four days' time, and the storm had accomplished what some of the best right-of-way men in

the country could not do, viz.: cleared the toll lines of trees that had been a menace to the service ever since the lines were built.

It will require many weeks' time on the part of both companies to put their respective plants in proper shape, as practically all of the copper wire will have to be re-run, all wire will have to be pulled up and retied, and in numerous cases poles will have to be reset and new arms placed.

At this time most all service has been restored, but the manner in which it has been built is not in accordance with specifications of the best engineers. The general public are very well pleased with the efforts of the companies to establish service and even the chronic kickers have remained unusually quiet.

ROBERT M. GILLESPIE.



Sleet Storm Damage in the Mohawk Valley Along the Line of the Interurban Railway near Herkimer, N. Y.

Weak Ringer Magnet Trouble and Remedy.

You ask for accounts of common troubles, so here is one that was common enough with us for a while. We have several series telephones, of rather ancient design, which we are still using, and which worked very well until we installed a new ringing machine in the exchange. This machine gave us a stronger current, of higher frequency than we had been getting from the old pole changes, and "trouble" tickets of "bells don't ring" came "in bunches," and always from those Methuselah telephones. With all the careful adjustment we could give some of these ringers, we failed to get a satisfactory ring out of them, the clappers having an obstinate way of getting on one side and buzzing there like a fly on a screen. We took one of these telephones to the shop to find out what it needed. Here we found that both coils were O. K., and that the ringer worked well on a hand generator or the pole generator, but that all it would do on the ringing machine was buzz, buzz, buzz.

By holding a hand generator magnet over the ringer, so that it would help out the ringer magnet, we could get a first class ring, as good as could be asked for. I went to the machine shop and had a couple of inch cores screwed into a heavy yoke just far enough apart so that the ends of the ringer magnets would rest one on each core; wound the cores with a lot of coarse magnet wire, connected the coils on 110 volts with some lamps for resistance, and began re-magnetizing ringer magnets. I just laid them across the poles of the big magnet for a few minutes, and saved the price of new ringer movements.

Sterling, Kansas. Otto Dean.

Typical Scenes in Herkimer, N. Y., after the Heavy Sleet Storm of February 16, 1909.

A Machine for Making Time.

By O. J. Prentice.

Shakespeare makes a character invoke a blessing on the one "who first invented sleep."

The telephone manager should be the one to invoke divine blessing on that keen-eyed, long-headed man who first conceived the idea of a high-wheeled, solid rubber-tired motor wagon.

The rapid advancement and improvement in telephone service has meant a corresponding enlargement of the expense account. Good service is the only kind of service that pays, and really good service costs; it means outlay. It takes good bookkeeping and wise management nowadays to care for a growing exchange, and show profits from the investment, instead of merely an increasing investment. This is particularly true of rural districts where a new subscriber may mean a mile or two of new poles; where a repair call may consume hours in "getting there and back" with only a few minutes' actual work to be done. The question of waste time in traveling is a serious one for the rural exchange manager. In his case, Time is Money, of a certainty.

The advent of the motor wagon, however, means a revolution in the expense account of telephone companies, just as the motor truck has revolutionized city delivery and teaming.

A motor wagon with from 15 to 20 horsepower, carrying a good load, will travel over country roads at the rate of 12 to 20 miles per hour. Suppose you have a three-mile run from town; you can motor it, the whole six miles there and back, in half an hour. Two horses and a wagon would take at the best twice that time, more likely three times as long. Suppose you have two or three such calls, one north, one south, and the other west of town, it means at least four or five hours taken in getting there and back, and as likely as not that you won't make all three calls the same day, in which case some one is getting grouchy because it takes you "so all-fired long" to get round and fix things up.

While a motor wagon thus saves on your time and expense, you are giving a better service. A trouble call gets quicker action; a new telephone can be put in without delay; you are building up a list of satisfied subscribers, not only at no cost to yourself, but at an actual saving of expense.

A case of widespread trouble, or immediate needs at far distant points, now means livery hire. Each added team means another man, perhaps two, and livery hire with extra men is a mighty expensive business.

Another great advantage of a motor wagon over the horse-drawn vehicle lies in the fact that whether you use your horse or not you have to feed it, and oats and corn are not exactly given away these days.

There's more truth than poetry in the saying "the horse is eating his head off in the stall." The horse must be fed when not working in order to be fit to work.

In a motor wagon, you feed only when working. The moment the engine stops working, you stop "feed expense." Anyhow it's cheaper to feed gasolene than oats. A gallon of gasolene means anywhere from 10 to 20 miles. Say an average of 30 miles for 40 cents for gasolene and lubricating oil. Imagine two horses covering 30 miles a day for six days at a cost of $2.40 for feed.

Whatever can be said in favor of gasolene motive power for repair work is equally true concerning construction work. With a motor wagon you not only can carry more supplies, poles, wire, cross-arms, tackle of all kinds, etc., but in your motor wagon you have a power that can be utilized in erecting poles, stringing wire, etc., in far less time and with much less effort than by present methods.

High wheels are the proven and tried wheel for country road travel. Solid rubber tires do away with tire troubles, —no punctures, no blow-outs. Nails, gravel, etc., make no difference. The high clearance gives safe transit over boulders, tree stumps, etc.

Time saved, trouble saved, expense saved and service bettered—one almost fears that the story will end with "and then I woke up." But this is no dream—it's a splendid reality of the 20th century.

Telephone News

Telephone Company at Humphrey, Neb., Changes Hands.

The Humphrey (Neb.) Electric Light and Telephone Company is now under the control of the Norfolk Long Distance Telephone Company and the Independent Telephone Company, of Columbus, through a transfer of stock made through W. J. Stadelman and C. J. Garlow, representing these respective interests. John Hugg, a banker of Humphrey, who was the largest stockholder, retains his interest.

The Humphrey company, in addition to operating the electric light plant, owns telephone exchanges at Humphrey, Cornlea, Tonorva, Lindsay and St. John, and lines connecting these towns.

The company has been obtaining long distance service over Bell lines, but will now become a part of the Independent system, through the connection of new long distance wires from Columbus and Norfolk.

Cuyahoga to Strengthen Reserves.

Ohio men interested in the Cuyahoga Telephone Company have received notification that that company began January 1, of this year, to set aside 23 per cent of the gross earnings for improvings, replacements and depreciation. This fund is expected to provide against loss by storm and other causes. This year it is estimated that the fund will exceed the expenditures by $30,000, and this will be invested in bonds of the company or other recognized securities. Each year all surplus will be invested in the same manner.

Telephone Exchange at Cunningham, Kans., Changes Ownership.

On March 15, Mr. E. S. Ratcliff of the Home Telephone & Electric Company, Cunningham, Kans., sold his interest in the company, to Mr. J. T. Elder, who since the organization of the company, five years ago, has been the manager, and a partner of Mr. Ratcliff.

When the company began operation, five years ago, it had 50 telephones and now owns and operates 245, about 180 of which are on rural lines. Three mutual lines connect with this company, giving a total of 15 rural lines and 280 telephones.

Proposition to Expropriate Bell Lines Before Parliament in Ontario.

Mr. I. B. Lucas has arranged for the introduction in the legislature of the Province of Ontario, Canada, a resolution to the effect that the house desires that the Parliament should pass such legislation as may be required to enable the province of Ontario to expropriate all property of the

Canadian Bell Telephone Company lying in that province. The reason given for the introduction of this resolution is that the Bell company is working to retard the development of rural telephones.

Eavesdropping Must Stop on Telephone Lines in Ohio.

It is now a misdemeanor in Ohio for any person employed by a telephone company to wilfully divulge a message heard by them over the telephone. The Thompson bill, introduced in the Senate of the Ohio General Assembly, was enacted by both the house and senate and became a law by the signature of Governor Harmon. No amendments were made either in the house or senate and no opposition of any character developed.

"COMING TO HIM"

A Columbus, Ohio, Paper's Idea of the Eavesdropper.

The law provides for a fine of from $100 to $1,000 and imprisonment of from thirty days to three months for any violation of its provisions.

The law is the result of a campaign experience by Senator Thompson during his campaign for member of the General Assembly. It appears that a telephone message was heard by certain of his political enemies and repeated, much to his detriment. While he was successful in the campaign, he was caused considerable trouble by the leak over the telephone in the message to some of his party workers.

Telephone men generally believe that the law will do much to better the service in the state. From every part of the state, while the measure was pending in the General Assembly, letters urging its enactment into a law were received, showing that sentiment was universally favorable to the proposed law. The above cartoon was recently published in the Columbus *Dispatch*.

New Light on Telephone Taxation in Michigan.

The Grand Rapids *Herald* of April 5 prints some figures which will probably have a tendency to throw the advocates of higher taxation for telephone companies into some confusion.

All the revenue derived from the taxation of telephone companies and certain other public service corporations, are, by law of the state, turned into the so-called primary school fund, which is distributed among the school districts of the state, and can be used solely for paying teachers. Statistics covering over two-thirds of the counties of the state, show that large sums are lying idle, aggregating over $3,000,000. The largest amount is for Van Buren county, being $290,312.42, in the idle primary school fund. The average for 57 counties out of 88 is $52,349.

Advocates of the increase in taxes for telephone companies will have hard work to show why the companies should bear any additional burden, which they will have to distribute over their subscribers in the shape of increased rates of about $1.00 per telephone per year, in order to pay the additional taxes, of which so large an amount is not used.

New Associate Members of the American Institute of Electrical Engineers.

Among the telephone men who have recently been elected to associate membership in the American Institute of Electrical Engineers are the following, whose names appear in the April number of the Institute *Proceedings*.

Carl Emanuel Boman, District Foreman, The New York Telephone Company, New York City; Joaquin Canizal, Superintendent, The Porto Rico General Telephone Company, San Juan, Porto Rico; Roy Oliver Demming, Wire Chief, The Bell Telephone Company of Pennsylvania, Philadelphia; Harold Chester Evartz, Cable Engineer, Nebraska Telephone Company, Omaha, Neb.; Richard Harvey Fair, Superintendent of Construction, Nebraska Telephone Company, Omaha, Neb.; Alfred S. Kelly, Superintendent, The Nebraska Telephone Company, Omaha, Neb.; Omer Kirby, Engineer, Automatic Electric Company, Chicago; Edwin Leander Lehman, Testing Table Operator, Bell Telephone Company of Pennsylvania, Philadelphia; Frank S. Morsman, Assistant Engineer, Nebraska Telephone Company, Omaha; James Albert Simpson, Aerial and Underground Engineer, The New York and New Jersey Telephone Company, Newark, N. J.; Raymond B. Wheelock, Chief Clerk to Superintendent, Nebraska Telephone Company, Omaha.

Bargains by Telephone.

In Washington, D. C., there is a firm selling furniture, which holds auctions every Saturday morning. During the week the articles are on view and anyone is at liberty to examine them.

A few days ago a woman saw a piece of furniture which struck her fancy, and, being unable to be present on the following Saturday, she arranged to be called at the time the article was put on sale. The bidding started at $25, and as the amount rose to $30, $35 and $40 the voice of the auctioneer could be plainly heard over the telephone. Our subscriber made her bids to a man stationed at the telephone in the salesroom, who called out the amount. She succeeded in securing the furniture for $49.—*Philadelphia Telephone News.*

New Orleans Board of Trade to Act on Rates.

The New Orleans Board of Trade is said to be considering the matter of telephone rates for the coming year. It will submit its conclusions to the Louisiana Railroad Commission for approval and when approval is gained a new agreement between the Board of Trade and the Cumberland Company, replacing last year's contract, will be made. It is reported that changes in the present schedule are to be made.

Putting it Up to the Operator.

A lady in Battle Creek, Mich., called for Mrs. Blank. The maid answered that Mrs. B. was out. The lady said: "Will you please have her call Battle Creek when she comes in?"

In a very Swedish voice the maid replied: "Will you blease write dot down vor me?"—*Operating Bulletin.*

Telephone Patents

Conducted by Max W. Zabel

SIGNALING SYSTEM.

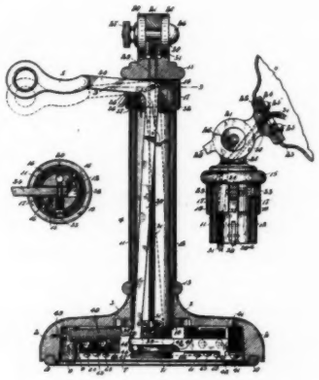
N. B. Cregier, Chicago, Ill., patent 915,075, March 16, 1909.

The telephone system disclosed in this patent aims to provide a police telephone system, in which each patrol box has a separate circuit to the police station, and in which lamps are provided on the front face of the switchboard in a manner indicative of the territory through which the patrol boxes are distributed, so that the lighting of each lamp indicates the locality of the call. The switchboard is likewise provided with signals, one for each patrol box, for indicating when the patrol wagon is wanted at the patrol box.

DESK STAND.

W. W. Dean, Chicago, patent 915,077, March 16, 1909, assigned to Kellogg Switchboard & Supply Co., Chicago.

This desk stand has vertically mounted springs 39, so that the contacts thereof are visible when looking into the base, and the circuit arrangements are such that but two springs are necessary. These springs are actuated by the receiver hook 5, which has a projection 38, extending to the switch-



ing springs. Contact terminal parts 63 are provided for the cords entering the base.

The patent further contemplates the insertion of a condenser in the base, of small dimensions, so that but two wires are necessary for connecting the desk set with the signal case. The induction coil 71 is likewise mounted in the base.

TELEPHONE POLE.

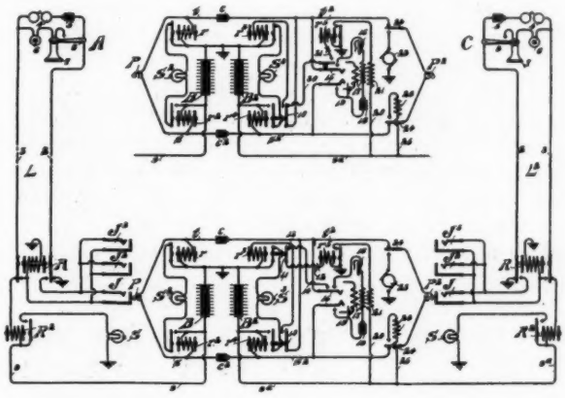
E. J. Newhall, Waupaca, Wis., patent 915,305, March 16, 1909.

The telephone pole described by the patent, consists of a central pipe or tube to which is secured braces at certain intervals. Guys are fastened to the ends of the pole and deflected outward away from it by means of the braces. The tension of the braces is adjusted by means of turn buckles. The cross arms are held in place by means of bands around the pole.

TESTING SYSTEM FOR TELEPHONE LINES.

Wm. W. Dean, Chicago, Ill., patent 916,117, March 23, 1909.

The common battery system of this patent is designed for use with a test relay, which is normally disconnected from the cord circuit with which it is associated. One test relay serves for each operator. The high resistance and high impedance test relay r^5, which is preferably common to all of the cord circuits at each operator's position, is connected between ground and the movable contact 11 of the tip relay r^3 by conductor 12, the normal contact 13 of said movable contact being joined by the conductor 14 with a normally open contact of the tip listening key spring 15.



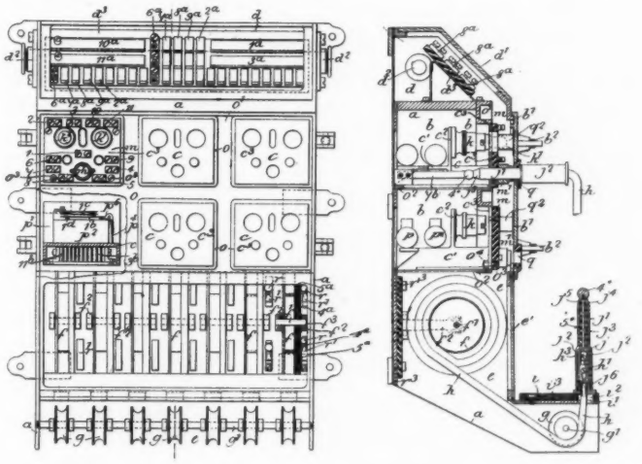
The test relay r^5 is therefore normally separated or isolated from the strands of the cord circuit, but when the listening key 15 is operated to connect the operator's set with the cord circuit, the relay is thereby connected with the tip strand t^2 of the cord circuit.

It is claimed that keeping the relay away from the ordinary cord connections prevents a short circuited cord from injuriously influencing the test circuit.

TELEPHONE EXCHANGE SWITCHBOARD.

E. A. Graham, Brockley, Eng., patent 915,592, March 16, 1909, Part assigned to Alfred Graham & Co., Brockley, Eng.

This patent illustrates a complete switchboard arrangement, which has its most advantageous use in naval application. The patent is rather voluminous, and covers many features. The illustration shows a section of the switch-



board illustrating the plug arrangement, and the manner of winding up the cord, likewise all of the parts, such as the jacks and signals and the connecting terminals, are mounted behind removable doors, and are arranged in a self-contained individual manner, so that any defective parts can be readily displaced and replaced.

COMBINED FIRE ALARM, TELEGRAPH AND TELEPHONE SYSTEM.

Manious Garl, Akron, O., patent 916,142, March 23, 1909.

This invention consists of a series of fire alarm, telegraph and telephone boxes, which are so arranged that the alarm boxes are connected to a normally closed line circuit. A normally open ground circuit to the boxes is used, and means are provided at each box for cutting a telephone into the line circuit. There are also switching devices at the central station for connecting the telephone at the central station into a separate circuit with the alarm box telephones and simultaneously breaking the line circuits, and at the same time putting into operation the ground circuit through all of the boxes when the telephones are in use.

TELEPHONE RECEIVER.

James Dixon, Cleveland, O., patent 915,079, March 16, 1909.

The telephone receiver of this patent is constructed with a view to enabling persons with impaired hearing to more clearly receive the sounds emitted by the receiver. For this purpose, a projection is provided on the side of the central ear piece aperture, which projection bears against the ear, thus transmitting the vibration thereto and thereby amplifying the effect, it is claimed.

TELEPHONE RECEIVER ATTACHMENT

A. Rector New York, patent 915,625, March 16, 1909, assigned to Rector Help-a-phone Company, New York.

With the intention of reproducing sounds in a receiver better, softer and clearer, this invention consists of a ring screwed onto the receiver in place of the cap. The ring has a central aperture and its outer end is adapted to receive the ear piece, thus forming a cylindrical groove which, it is claimed, gives the desired result.

TELEPHONE RECEIVER HOLDER.

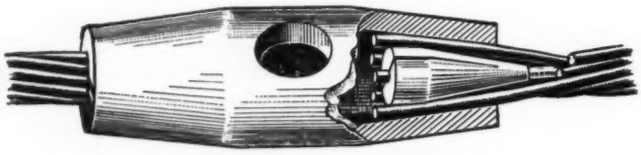
F. S. Weyrs, Philadelphia, patent 915,518, March 16, 1909.

A receiver holding appliance adapted for attachment to desk telephones is the subject matter of this patent, and provides, in addition, means operated by the links which hold the receiver, whereby the switchhook is operated similarly to its manner of operation when the receiver is ordinarily placed thereon or removed therefrom.

In the Manufacturing Field

A Messenger Splice.

Frank B. Cook, of 242 W. Lake St., Chicago, Ill., has placed on the market a messenger splice which has been tried out in practice and found to be valuable for the uses for which it was designed. Wherever messenger strands can be or need be spliced, the device is applicable without the use of tools. It is claimed that a complete splice can be made by any ordinary lineman within two minutes, and



The Cook Messenger Splice.

that the splice will be stronger than Siemens-Martin strand. Ordinarily, if a cable-supporting messenger runs short, it means a splice, and this not only requires time and is expensive, but can only be made by an experienced man. With the Cook splice this operation, it is said, can be performed by anyone. Moreover, in practice, short lengths of strand are either thrown away or consigned to a miscellaneous junk heap for future use. With the splice shown in the illustration, these short lengths of strand can be used up to advantage. These are the principal points of advantage claimed by the manufacturer, the splice also embodying the elements of low cost and reliability.

Recent Stromberg-Carlson Orders.

The Stromberg-Carlson Telephone Manufacturing Company, of Rochester, N. Y., reports that in addition to its regular orders for small switchboards, which have been steadily increasing during the past two months, it has been awarded contracts for several large installations of multiple switchboards consisting of complete central office equipments as follows:

Chillicothe, Mo., wth an ultimate capacity of 2,400 subscribers' lines, having 800 lines equipped; Wichita, Kan., with a multiple toll board; Watertown, N. Y., with an ultimate capacity for 4,800 subscribers' lines having 1,100 lines equipped; Herkimer, N. Y., with an ultimate capacity of 1,200 subscribers' lines with 500 lines equipped.

One of the most important foreign shipments made by this company this year comprises a multiple switchboard equipment having a capacity of 4,800 lines with 1,000 lines equipped at the time of shipment. This switchboard will be installed and in operation this year at Valparaiso, Chile.

Radical Departure in Selective, Secret Service Party Lines.

The Monson Automatic Telephone Company, of North St. Paul, Minn., manufactures an instrument for the improvement of party lines which is distinctly novel. It was invented and patented in this country and Europe by August A. Monson, of North St. Paul, Minn., and is now for the first time placed on the market.

It consists of a very simple arrangement of relays, of a late Stromberg-Carlson type. These are suitably mounted and protected by a galvanized cover. The whole affair is then mounted on a distributing pole, like the ordinary terminal head, which it resembles closely.

From this pole, individual wires radiate to each telephone, but only one pair is run from the pole to the central office, where it terminates in a drop or signal in the usual way. No special ringing currents are used and any telephone equipped with a push button needs nothing more added. This device rings the telephones selectively and insures private conversation.

The telephones are always disconnected from the trunk line when not in use, therefore the line is never loaded, and ordinary series telephones can be used instead of bridging instruments.

Any number of subscribers can be put in this kind of service as far as the traffic will stand it.

These features make the invention of especial value to rural districts. In such cases it is placed on a pole where a number of farm lines converge and they terminate in it.

Each branch line is then automatically connected, in turn, to the main line running to "Central" by pressing the button on the telephone. If the button is not pressed the generators ring only the branch line; this answers for local calls.

No other branch line can disturb a connection when made,

but "Central" can connect any two of the branches together, and maintain the others still disconnected.

The operator always has supervision over the connecting lines and gets the disconnect signal in the ordinary way.

Even the main line running to "Central" can have telephones placed along its entire length.

In ordinary exchange work, however, these "Automatic trunkers," as they are called, are distributed in various parts of town, where they give private and selective service to their respective neighborhoods.

In serving outlying villages from a large exchange, a number of these "Trunkers" are installed in the village to be served, and these are operated from the larger exchange, thus giving high-class service to the small town without a local operator.

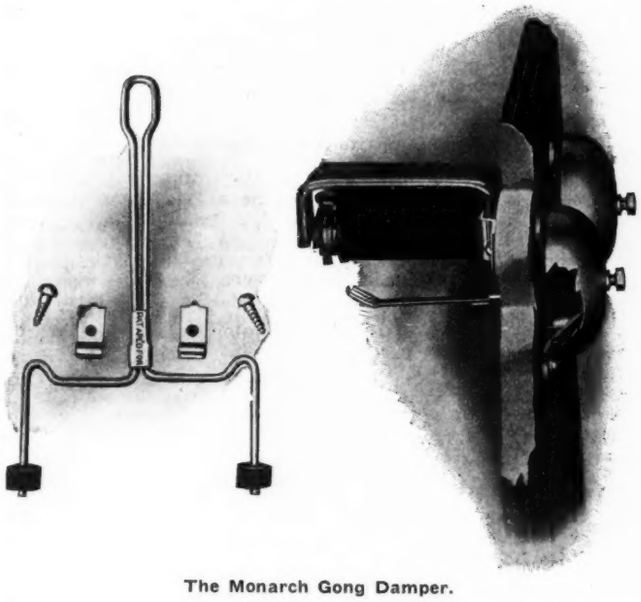
A Gong Damper.

Before conversation can be carried on through most telephones it is necessary either to wait until the gongs stop vibrating or else place the hand on the gongs, which in a short time spoils their appearance.

A clever little device, designed by the Monarch Telephone Manufacturing Company, is being made part of every telephone built by that company. It is said that this device, which is called a gong damper, effectually stops the vibration of the gongs, the instant the receiver is removed from the hook.

It consists of a wire fixture shown in the illustration which is attached to the door of the cabinet just below the ringer. One part of this fixture—the long arm of double wire—extends over, and rests on, the hookswitch lever when the door is closed. The other end of the fixture consists of two shorter arms of single wire which extend through the door of the cabinet and to the inside of the gongs. These short arms are fitted at the end with leather pads.

When the receiver is taken from the hook and the lever



The Monarch Gong Damper.

springs up it raises the long arm of the fixture with it and the two pads press against the inside of the gongs.

Owing to the manner in which this gong damper is balanced, only a slight touch is required to operate it and it therefore places no strain on the hook switch.

THE CENTURY TELEPHONE CONSTRUCTION COMPANY, of Buffalo, N. Y., is mailing out cards to its customers, containing illustrations of the various pieces of apparatus which it manufactures. Beneath each illustration is an appropriate quotation pointing to the advisability of being progressive and open to the investigation of new ideas.

An Attractive Card.

An extremely clever and artistic card, reproduced below, is the one which is being sent out to the trade by the Star

A Card Which Attracts Attention.

Expansion Bolt Company, of Bayonne, N. J. Beneath the photograph is the following:

CAN I INTEREST YOU

In a Straightforward Business Proposition
Which will Mean Increased Profits for 1909*?*

You'll find Convincing Facts and Figures on the
Reverse Side, and you are Very Cordially Invited
To Look Them Over—Carefully.

Yes, I'll Wait Here till You Come Back.

S E B Co.

The reverse side of the card contains a talk on "Seasonable Stuff" regarding the advantage to dealers of laying in a stock of Star expansion bolts.

THE F. BISSELL COMPANY, of Toledo, Ohio, is mailing out its April calendar card. The line to which attention is directed this month is that of pins. A miniature clothes pin is attached to the card with the notation "We would like to pin your orders to our line." The pins are said to be of good material, at right prices and can be shipped promptly.

THE KELLOGG SWITCHBOARD & SUPPLY COMPANY, of Chicago, Ill., has recently issued a folder which completely and attractively illustrates the new Kellogg desk stand. The front and rear views of the stand give an excellent idea of its appearance. Other illustrations show base with plate removed, and a cross section view of the transmitter and lug.

MR. FRANK G. JONES, president of the American Electric Fuse Company, was recently elected a director of the Hackley National Bank of Muskegon, Mich.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. R. WIMP is now local manager of the Farmers' Mutual Telephone Company at Adair, Ia.

MR. JAMES MARTIN, of Kewanee, Ill., has been placed in charge of the Farmers' Telephone Company at Viola, Ill.

MR. O. C. SUNDQUIST has been promoted to the position of local manager of the Michigan Telephone Company at Escanaba, Mich.

MR. GLENN STEVEN has been selected as manager of the Farmers' Home Telephone Comapny at Shelton, Neb., succeeding Albert Allen.

MR. NOLAN P. ZIEGLER, formerly of York, Pa., has been appointed manager of the Central Union Telephone Company at Mishawaka, Ind.

MR. GEORGE BLAKELY, of Crookston, Minn. has been promoted to the managership of the Northwestern Telephone Company for South Dakota, with headquarters in Sioux Falls.

MR. C. C. CRAIG, formerly general manager of the Northwestern Long Distance Telephone Company of Portland, Ore., has accepted the position of general manager of three allied Independent telephone companies operating in Alameda, Oakland and Berkeley, Cal.

NEW COMPANIES.

CHINO, CAL.—The San Gabriel Telephone Company has filed articles of incorporation with the county clerk and will do business in Los Angeles, Orange, San Bernardino and San Diego counties, with its headquarters in this place. The directors are H. F. Metcalf and Edgar O. Fawcett, of Pasadena; H. V. Carter, of Los Angeles, and E. E. Bailey and W. M. Northrup, of Alhambra. The authorized cap'tal is $200,000.

MOUNTAIN VIEW, COL.—The Mountain View Telephone Company has been organized to connect with the Farmers' Mutual Telephone Company at Calhan and Ramah. Bradford Hale was elected president; J. W. Baker, vice-president; F. S. Turner, secretary.

MT. VERNON, GA.—The citizens of this place have organized a telephone company known as the Mt. Vernon Telephone Company. Among those interested are: L. L. Jennings, G. W. Dodson, C. P. McGuire, J. L. McClure, L. Terry and J. I. Terry. The material for the line has been ordered and work will begin at once.

KENNARD, IND.—The farmers of this vicinity and a number of other citizens have organized a telephone company to be known as the Kennard Independent Telephone Company.

ROSEDALE, IND.—Articles of incorporation have been granted the Rosedale Telephone Company to build and maintain a system in Rosedale and in Parke and Vigo counties. The directors are: Fred Wimmer, J. A. Taylor, George W. Rukes.

CLEGHORN, IA.—The Cleghorn Independent Telephone Company has been incorporated with a capital stock of $2,450. The capital stock is placed at $4,000.

HAZLETON, IA.—At a recent meeting, the stockholders of the Otter Creek Telephone Company voted unanimously to incorporate under the name of Hazleton Farmers' Telephone Company. The officers are as follows: President and general manager, D. N. King; vice-president, J. D. Allen; secretary, E. J. Short; treasurer, George Nibeck. Directors: D. N. King, E. J. Short, George Nibeck, J. D. Allen, R. G. Koile and C. M. Halbert.

MARSHALLTOWN, IA.—The Air Line Telephone Company has been organized by farmers in the vicinity of Blairsburg and will build a line to Webster City, to connect with the Hamilton County Independent Telephone Company. The officers are: President, C. D. Berogan; vice-president, C. F. Brown; secretary, Irving Lasher; treasurer, John Butler. Directors: C. D. Berogan, Charles Singer, Irving Lashe and C. F. Bown.

WYOMING, IA.—The Tracy Telephone Company has been incorporated with a capital stock of $900. The directors are: J. S. M. Crillis, G. W. Harney, F. P. Reed, J. B. Layman and W. L. Graham.

BUXTON, KAN.—With a capital stock of $10,000 the Buxton Telephone Company has been incorporated.

FLETCHER, KAN.—A charter has been granted to the Fletcher Telephone Company. The capital stock is $10,000 and the directors are R. C. Stout, W. E. Nix, J. L. Peden, all of Fletcher.

LAMAR, KAN.—A charter has been granted to the Lamar Rural Telephone Association, which has a capital stock of $1,400. The incorporators are D. R. Hardesty, J. W. Bain and others.

PUTNEY BEND, KY.—W. E. Robinson, A. T. Ham, W. T. Woolfolk and others have incorporated the Putney Bend Telephone Company with a capital stock of $200.

CARR'S (P. O. BRANCH), MICH.—Articles of association have been filed by the Carr Telephone Company with a capital of $575. The officers are: W. L. Ingalls, president; W. I. Sanders, vice-president; J. B. Bauman, secretary, and W. S. Charon, treasurer.

HARRISVILLE, MICH.—The Citizens' Telephone Company of this place has been formed, with a capital stock of $3,000. The officers are: President, W. L. Chappelle; vice-president, W. D. Mitchell; secretary, S. B. Kahn; treasurer, John McGregor. An exchange will be established in this place and rural lines built throughout Alcona conuty.

ITHACA, MICH.—The St. Charles Roadway Telephone Company has been organized by farmers living on the St. Charles road in Emerson township. The officers are as follows: President, Chas. H. Reeves; secretary, William Schaub; treasurer, Eugene Reeves. Directors: Chas. H. Reeves, Wm. Schaub, Eugene Reeves, Daniel A. Davis, Claud Knapp. The capital stock is placed at $1,500 and connection will be made with the Union Telephone Company's exchange in this place.

NORTHVILLE, MICH.—Articles of incorporation have been filed for the Inter-County Telephone Company, with a capital stock of $5,000. The following are directors: Clement C. Yerkes, Louis A. Babbitt, Robert C. Yerkes and Frank Thompson.

SPRINGVALE, MICH.—The Springvale Telephone Company has been incorporated with a capital stock of $1,800.

VANDALIA, MICH.—With a capital stock of $30,000 the Birch Lake Telephone Company of this place has been incorporated.

FAIRFAX, MINN.—Organization papers have been granted to the Russia-Fairfax Telephone Company. The officers are: B. Hinton, president; Seivert Qualbert, vice-president; O. Sanness, secretary, and E. Durdahl, treasurer.

THIEF RIVER FALLS, MINN.—The Eastern Marshall-Red Lake Farmers' Telephone Company has incorporated and will construct a line to Grygla.

PILOT GROVE, MO.—H. Harrison Simpson has filed articles of incorporation for the Enterprise Telephone Company with a capital stock of $15,000. H. H. Simpson is president, and C. H. Ross, secretary-treasurer.

HEBRON, NEB.—The Bruning Home Telephone Company of Bruning has been organized with J. H. Casper, president; H. R. Park, vice-president; W. H. Grone, secretary-treasurer. The board of directors is composed of: Herman Bruning, Jr., Theo. Philippi, E. M. Uphoff and Frank Bruning. The capital stock is $15,000.

VINELAND, N. J.—A charter has been granted the South Jersey Telephone Company. It will have a capital stock of $25,000, and the incorporators are: F. Macomber, A. H. Wilson, C. Becker, E. L. Bolles, D. Mecgeorge, W. S. Claypoole, D. S. Edison, S. A. Downs, G. H. Putnam and C. N. Veale, all of this place.

WALES, N. D.—It has been determined by the Wales-Moscow Co-operative Telephone Company to commence work as soon as practicable on the telephone line between Moscow township and this place. The officers are: President, Ole Oldmansen; vice-president, George H. Johnston; secretary, Edward Hill, treasurer, C. P. Getchell. Articles of incorporation for the company have been filed with a capital stock of $3,000.

ISLE ST. GEORGE, OHIO.—The North Bass Telephone Company has been organized here with about 20 subscribers. W. D. Smith is president and Lawrence Reichel, secretary.

KANSAS, OKLA.—The Delaware Central Telephone Company has been organized with a capital stock of $500. The directors are: D. A. Smith, W. J. Holbrooks and J. R. Terry, all of Kansas.

LAWRENCEVILLE, PA.—Incorporation papers have been filed by the Browntown Telephone Company with a capital stock of $1,000. Its lines will connect Lawrenceville, Pa., with Browntown and other points in Steuben county, N. Y. The incorporators are: Fred A. Burr, Ezra Maxwell, Charles Phelps, Leon Terwilliger and others.

PERKASIE, PA.—A local telephone company has been organized in Bedminster township, Bucks county, with the following officers: Dr. W. S. Nicholas, president; Joseph Diehl, secretary; John H. Nickel, treasurer. The line will run to Deep Run and other places.

NASHVILLE, TENN.—Cannon and DeKalb counties now have a telephone company, to be known as the Home Telephone Company, having a capital stock of $2,000. The incorporators are: W. R. Estes, T. B. Clark, L. E. Barges, John H. Melton, W. H. Adamson and L. E. Yeargin.

PLEASANT SHADE, TENN.—The Pleasant Shade Mutual Home Telephone Company has been incorporated with a capital of $1,000. The organizers are: G. W. McDonald, G. W. Cornwell, Jno. C. Hesson, J. B. Organ and J. A. Sanderson.

SALT LAKE CITY, UTAH.—The West Side Telephone Company has been organized to operate lines running into Oasis, Deseret and Hinkley. The officers are: President, Thomas H. Pratt of Hinkley; vice-president, John Dewsnip of the same place; secretary-manager. W. B. Hamilton of Deseret; treasurer, Joseph W. Blake of Hinkley; and as an additional director, W. Huff of Oasis.

GOODWINS FERRY, VA.—L. A. Kessinger, president, J. D. Scott, secretary-treasurer, are the officers of the Spruce Run Mutual Telephone Company of this place, which has incorporated with a capital of $5,000. The directors are: F. B. Epling, O. L. Williams and B. E. Cook, all of Goodwins Ferry.

ST. CLAIR BOTTOM, VA.—Messrs. Robert Eades, Thomas De Bord, Charles Grinstead, Samuel Tilson, Samuel Bishop, Taylor Rouse, Joseph Bishop and William Williams have established a connecting telephone line between this place and Chilhowie.

FAIRVIEW, W. VA.—The Proctor & Peabody Telephone Company has been incorporated with capital stock of $5,000 by E. R. Parsons, Albert Garner and H. M. Wells of Proctor; C. U. Ramsey of Woodlands, W. Va., and E. C. Yoho of Welcome, W. Va.

ABERDEEN, SASK., CAN.—The farmers east of here have organized a telephone company to be known as the Aberdeen Valley Rural Telephone Company, Ltd., and will build a line from Aberdeen into the southeastern country.

NEWTONVILLE, ONT., CAN.—Another Independent telephone line to connect with Orono and Newtonville has been organized in Durham county. The officers are: President, W. H. Reid; vice-president, Andrew Sharpe; secretary-treasurer, Moses Cowan. Directors: H. W. Renwick, W. N. Buckley, H. Millson, R. Ferguson and John Turner.

FINANCIAL.

EARL, ARK.—The Earl & Tyronza Telephone & Telegraph Company has increased its capital stock from $10,000 to $32,000.

RECTOR, ARK.—The Rector Co-Operative Telephone Company has increased its capital stock.

PENDLETON, IND.—The capital stock of the Pendleton Telephone Company has been increased from $10,000 to $20,000.

HAVERHILL, KAN.—The Haverhill Co-Operative Telephone Association contemplates increasing its capital stock to $25,000.

MINNEAPOLIS, MINN.—A quarterly dividend at the rate of six per cent per annum has been declared by the directors of the Tri-State Telephone & Telegraph Company on the common stock.

SPRINGFIELD, MINN.—A cash dividend of 10 per cent has been declared by the directors of the Springfield Telephone Company.

HARTINGTON, NEB.—At the annual stockholders' meeting of the Cedar County Farmers' Telephone Company an 8 per cent dividend was declared.

ADAMSVILLE, OHIO.—A dividend of nine per cent was declared by the stockholders of the Adamsville Telephone Company at their annual meeting.

TOLEDO, OHIO.—The directors of the Home Telephone Company have declared the usual quarterly dividend of 1¼ per cent.

ALLENTOWN, WIS.—At the recent annual meeting of the stockholders of the Allentown-Kohlsville Telephone Company it was decided to increase the capital stock from $5,000 to $15,000.

PORTAGE, WIS.—At the annual meeting of the Leeds Farmers' Telephone Company a dividend of 4 per cent was declared.

SASKATOON, SASK., CAN.—The Saskatoon Telephone Company at its annual meeting showed that the profits for the year amounted to 13 per cent on the paid-up capital, and a dividend of 8 per cent was declared, the balance being placed to the reserve account.

FRANCHISES.

BUCKEYE, ARIZ.—A petition from the citizens of Buckeye and Liberty was received and filed asking for a franchise for a new line to be operated in that section of the valley. The applicants for the franchise are T. N. Clanton and H. E. Kell.

NEEDLES, CAL.—The board of supervisors has been asked for a franchise for a telephone system to connect Needles and the mining camps with San Bernardino by W. C. Vaughan.

BUSHNELL, ILL.—A petition has been granted the Buncomb Telephone Company for right of way along the highways of Lamoine township. I. P. Dunsworth is president; F. E. Hendrickson, secretary, and Perry Hines, treasurer of the company.

JASONVILLE, IND.—The city council has been petitioned by the Farmers' Telephone Company of Howesville for a franchise to install a telephone exchange in this city.

FRAZEE, MINN.—Mr. E. F. Gummer and B. Y. McNairy have been granted a franchise to erect a telephone exchange in this town.

McINTOSH, MINN.—Permission has been granted K. O. Bolstad for the construction of a telephone line in this place.

UNION, MO.—Permission to erect telephone lines along the country road has been granted the Meramec Telephone Company.

RICHMONDVILLE, N. Y.—A franchise has been granted the Farmers' Telephone Company of Summit to construct a line in this village.

GOODRICH, N. D.—A franchise has been granted the Sheridan County Telephone Company for constructing and operating a telephone system in Sheridan county.

SENTINEL BUTTE, N. D.—A franchise has been granted the Golden Valley Telephone Company to construct and operate a telephone system in this town.

WISHEK, N. D.—A franchise has been granted to F. E. Corson to construct and operate a telephone system in this village.

DUFUR, OREGON.—A franchise for the construction of a local telephone system has been granted to J. A. Stevens and Waldo Brigham.

FLORESVILLE, TEX.—The Floresville Co-Operative Switchboard Association has petitioned the city council for permission to set poles and string wires for installing a telephone system in this place.

MANTI, UTAH.—The county commissioners have granted a franchise to the Gunnison Telephone Company.

PROSSER, WASH.—A fifty-year franchise has been granted to the White Bluffs & Columbia River Telephone Company. Work will begin at once and lines will be run from White Bluffs to Kennewick, via the "horn," passing through Hanford and Richland.

CONSTRUCTION.

MUD LICK, KY.—The Mud Lick Telephone Company, which was recently organized, will begin construction of a telephone line from Mud Lick to Kelley's, at once. Mr. John Tacket, Mud Lick, is interested in the company.

WILLOW RIVER, MINN.—The Pine County Telephone Company reports that it will extend its telephone lines in all directions, this Spring.

MERIDIAN, MISS.—The Home Telephone Company has everything in readiness for the construction of its long distance lines this Spring. The work will be started at three different points, Meridian, Jackson and Hattiesburg. Two crews will be sent out from Jackson, one to work toward Meridian following the A. & V. R. R., and another will follow the line of the Gulf and Ship Island Railroad toward Hattiesburg. After these lines are finished, work will begin on a line toward Gulfport. In addition to this the lines extending south on the Mobile and Ohio to Quitman, will be completed.

COLUMBIA, OHIO.—The Columbia Gas & Electric Company has just completed its pipe line in Campbell County, and will now commence the construction of a telephone line to run along the pipe line to report to headquarters any leaks which may be found in the pipes by the inspectors.

ELECTIONS.

POMONA, CAL.—The Home Telephone Company at its annual stockholders' meeting, re-elected the following officers: President, Doctor Thomas; vice-president, J. Albert Dole; secretary, Arthur M. Dole; treasurer, Charles E. Walker; manage, D. S. Parker, and assistant manager, Carl H. Lobeer. Directors were re-elected as follows: F. W. Thomas, J. Albert Dole, D. S. Parker, R. K. Pitzer, C. E. Walker, A. M. Dole and L. A. Lorbeer.

ANCHOR, ILL.—William Beecher has been elected president of the Anchor Telephone Company for the coming year and Jacob Martens, secretary-treasurer.

BONDVILLE, ILL.—At the recent annual meeting of the Bondville Telephone Company the following officers were elected: President, W. H. Scott; vice-president, Edward Rising; secretary, Otis Norton; treasurer, P. N. Jacobs; manager, G. F. Siefken. Directors: O. T. Ben, Fred Barber, Harry Sheltz, L. P. Rayburn, Russell Scoggin.

ELLIOTT, ILL.—The Dix Telephone Company recently elected J. F. Briggs and Erick Grunsted directors for three years.

GALATIA, ILL.—The Galatia Independent Telephone Company held its annual meeting recently and elected B. E. Edwards, president; B. A. Durham, vice-president; Albert Gore, treasurer; L. R. Stricklin, secretary; directors, S. D. Lockwood, A. Garrison, V. S. Quick, C. E. Robinson, W. C. Williams and Henry Adams.

KEMPTON, ILL.—The Kempton Telephone Company recently elected the following directors: E. K. Bute, Winfield Scott, W. J. Castle and J. E. Seyster; secretary-treasurer, A. J. McKinney.

ROCK GROVE, ILL.—At the recent annual meeting of the Rock Grove Farmers' Mutual Telephone Company the following directors were elected: L. E. Rote, W. F. Fehr, George Nesemeier, William Fisher, George Bixler, A. N. Zimmerman, D. F. Meinert.

WATAGA, ILL.—The Wataga Farmers' Mutual Telephone Company elected the following officers at its annual meeting: John Sutor, president; J. E. Williamson, vice-president; Andrew Anderson, secretary; L. N. Edwards, treasurer.

GREENS FORK, IND.—The Greens Fork Co-Operative Telephone Company at its annual meeting elected Abner D. Bond, treasurer, and James Martin, Enos Warfel, William Hatfield, Grant Watkins and Abner Bond, directors. The directors elected the following officers: President, Enos Warfel; vice-president, James Martin; secretary, William Hatfield; manager, John F. Clawson.

MT. ZION, IND.—At the recent annual stockholders' meeting of the Mt. Zion Telephone Company, officers were elected as follows: Thomas Morris, president; Lewis Huffman, treasurer; C. D. Neff, secretary and local manager, and in addition to this list is the name of Amos Williams, forming the board of directors.

NEW ALBANY, IND.—Officers have been elected by the Harrison County Telephone Company for the ensuing year as follows: Phillip Blunk, president; Conrad Richert, vice-president; Erastus Smith, secretary; Charles Treese, treasurer. Directors: R. R. Hart, Fred Voelker, and Louis Zabel.

BANGOR, IA.—The result of the election at the recent annual meeting of the Bangor Telephone Company is as follows: M. E. Green, president; C. C. Carson, secretary; C. R. Whinery, treasurer. Directors: D. C. Norman, W. P. Whinery, S. Jessup, D. L. Stanfield.

BOONETOWN, IA.—The annual meeting of the Farmers' Co-Operative Telephone Association resulted in the election of the following officers for the ensuing year: President, S. Saddoris; vice-president, L. O. Hutson; secretary, S. J. Wheeler; treasurer, Anton Nelson.

CLEAR LAKE, IA.—The Star Telephone Company elected for the ensuing year the following officers at its recent annual meeting: W. Knaak, president; C. C. Dawson, vice-president; S. J. Hammond, secretary; John Paul, treasurer; manager, J. H. Miller.

EMMERSON, IA.—For the ensuing year the following officers were elected by the Emerson Mutual Telephone Company at a recent meeting: President, E. B. Birdsall; vice-president, J. R. Jones; directors, John Sandiland, Henry Douglas; secretary, A. D. Sowers; treasurer, E. C. Collins.

HAVELOCK, IA.—The annual election of the Havelock Mutual Telephone Company was held recently, and the following were chosen as officers for the ensuing year: President, S. H. Gill; vice-president, C. C. Malthzahn; secretary, W. E. Pirie; treasurer, J. B. Sheldon.

MARTINSBURG, IA.—At the recent annual meeting of the Martinsburg Telephone Company, Fred Thornburg was re-elected president, P. C. Heninger, secretary, and John Berridge, treasurer.

NORWAY, IA.—At the recent annual meeting of the directors of the Mutual Telephone Company of this place the following officers were elected: L. J. Norland, president-manager; H. A. Haerther, secretary; John F. Schloeman, treasurer.

RINGSTED, IA.—At the annual meeting of the stockholders of the Farmers' Mutual Telephone Company, the following officers were elected for the coming year: James Welch, president; W. Nelson, vice-president; C. B. Murtagh, treasurer, and E. T. Sorum secretary.

WILLIAMSBURG, IA.—Officers who were elected for the following six months by the Yankee Lane Telephone Company at its recent meeting are: President, Layton Rowe; vice-president, E. Lamoreaux; treasurer, Henry Aggson; secretary, W. J. Popham. The directors are: J. Hall and James Aggson.

DOWNS, KAN.—A. W. Hefley was elected president and Fred Heiser vice-president at the annual meeting of the Farmers' Mutual Telephone Company.

MILAN, KAN.—The Sherwin and Melrose Telephone Company at its annual meeting elected the following: Fred Cowley, president; Mr. Averill, secretary; James Kirk, treasurer. The executive board consists of D. Smith, Louis Fee and E. Walker.

MOUNDRIDGE, KAN.—The following gentlemen were elected as a board of directors for the Moundridge Telephone Company: H. Lattschar, J. J. Krehbiel, P. D. Dirks, C. C. Kaegi, Jacob Isaac, D. R. Krehbiel and Robt. Durst. The board has organized by electing H. Lattschar, president; C. C. Kaegi, vice-president; and P. D. Dirks, secretary and treasurer.

PLEASANTON, KAN.—The Maple Grove Telephone Company has elected the following officers: President, G. W. Hearld; treasurer, E. Fritzmorris. Director, G. W. Gifford.

WOODSTON, KAN.—The following officers were elected by the Woodston Telephone Company at its recent meeting: A. L. Bonebrake, president; Frank Shutts, vice-president; V. Bruton, secretary-treasurer. Directors: M. J. Wells, A. A. Elder and J. E. Watts.

ALMA, MICH.—The Union Telephone Company at its recent annual meeting re-elected its old board of directors, who are: S. E. Parkhill and T. Kincaid, both of Owossa; C. T. Babcock, J. H. Filden and J. T. Mellman of St. Louis; G. S. Aldrich and G. W. Gale of St. Louis; E. S. Wagner of Edmore; F. G. Theirs, Mount Pleasant, and others. The directors have elected the following officers: President, C. T. Babcock; vice-president, E. S. Wagner; secretary, L. L. Conn; treasurer, G. S. Ward; general manager, W. J. Melchers.

CARLETON, MICH.—At a recent meeting of the People's Telephone Company, the stockholders elected the following officers: Joseph Waltz, president; E. C. Maxwell, vice-president; Frank L. Edwards, secretary-treasurer. Directors: A. Reiser, Wayne; T. J. A. Milliken, New Boston; Jesse Butler, Willow, Joseph Waltz, E. C. Maxwell and Frank L. Edwards, Carleton.

REDWOOD FALLS, MINN.—The Redwood County Rural Telephone Company at its recent annual meeting elected A. D. Stewart, L. J. Lindeman and Homer Johnson as directors. The following were elected officers: President, A. O. Gimmestad; vice-president, A. D. Stewart; secretary, George L. Evans; treasurer, L. J. Lindeman; manager, Donald Stewart.

WAUKON, MINN.—John Haggberg, president; G. W. Freer, secretary; John Kalberg, treasurer and Otto Haggberg, general manager, constitute the officers elected by the Farmers' Telephone Company at its recent meeting.

ELM CREEK, NEB.—At the annual meeting of the Fairview Telephone Company the following officers were elected: W. C. Pettett, president; O. B. Balyeat, vice-president; W. T. Gould, secretary-treasurer; directors, E. E. McCartney and Eber Richards.

DANBY, N. Y.—As a result of the recent annual meeting of the Danby Telephone Company J. E. Black is president; Fred B. Van Etten, vice-president; Dr. Carl Denman, secretary; C. F. Mettler, treasurer. Directors: Dell Hammond, Fred Dorn and Norman Stephens.

BRYSON CITY, N. C.—At the Bryson City Telephone Company's annual stockholders' meeting, the following officers were elected for the ensuing year: President, J. L. Gibson; vice-president, John H. De Hart; secretary, R. L. Sandidge.

ANTWERP, OHIO.—The following officers were elected at the annual meeting of the Home Telephone Company: F. D. Graves, president; C. A. Lindemuth, vice-president; J. H. Finley, secretary-treasurer. The board of directors is composed of P. P. Doering, H. Harris, H. H. Gordon, E. R. Moser, George W. Forder and F. Pocock, together with the officers of the company.

CANONSBURG, PA.—The Farmers' Mutual Telephone Company recently elected the following officers: President, R. L. Munce; vice-president, R. B. Blayney; secretary, B. K. McConnell; treasurer, J. Fulton. The old board of directors was re-elected as follows: J. C. C. Pees, R. L. Munce, R. G. Lutton, S. O. Black, R. B. Blayney, S. M. Hopper, H. A Day, W Courson and others

YANKTON, S. D.—The board of directors elected for the ensuing year at the annual meeting of the stockholders of the Independent Telephone Company is composed of: C. H. Dillon, W. H. Edmunds, E. A. Bruce, James A. Wagner, R. H. Jones, W. B. Dean and Geo. C. Wagner. C. N. Gray was elected secretary.

ROSALIA, WASH.—At its sixth annual meeting, the Rosalia Telephone Company elected these officers: President, R. M. Turnley; secretary, F. J. Wilmer; treasurer, H. M. Roberts. Directors: J. J. Stephens, M. W. Merritt, J. P. Schmitz.

LEEDS, WIS.—The Leeds Farmers' Telephone Company at its recent meeting re-elected directors as follows: W. Moore, C. J. Kunn, Henry Peterson, K. J. Kroncke and E. C. Thiessen.

OSCEOLA, WIS.—As officers of the Osceola Farmers' Mutual Telephone Company there were elected the following: Louis Schmidt, president; Fred Pilgrim, vice-president; B. J. Rockel secretary-treasurer.

RUSSELL, WIS.—The Borst Valley Telephone Company held its annual meeting recently and elected the following officers: A. M. Bautch, president; J. F. Ligman, secretary; T. P. Kzosek, treasurer.

MISCELLANEOUS.

DELIGHT, ARK.—Edward Honeycut and others of Delight have purchased the telephone line which connects this place with Bills.

WASHINGTON, D. C.—In the Daily Consular and Trade Reports of March 31, issued by the Bureau of Manufacturers, Department of Commerce and Labor, is the following: "It is reported that the National Assembly of Panama has recently enacted a law authorizing the executive committee to spend a sum approximating $100,000 in the construction of telegraph lines in the Republic of Panama. The law authorizes the installation of telephone service between several of the towns, and the erection of wireless stations between Colon and Bocas del Toro."

MORROCCO, IND.—The Martinton telephone system was sold to a company which owns a number of such systems. The Martinton system covers a large territory, extending as far west as Kankakee, Ill., and it is announced by the new owners that extensive improvements will be made.

HERKIMER, N. Y.—C. H. Poole of Utica, representing Independent telephone interests, purchased the property of the Herkimer County Telephone Company, at the referee's sale, for the sum of $16,000. If the council grants permission to raise the rates, the system which was badly damaged by February sleet storms, will be placed in first-class condition.

GRAVESTON, TENN.—Dr. C. H. Morgan is endeavoring to interest the citizens of this place in forming a telephone company.

NEW RICHMOND, WIS.—A farmers' mutual telephone company is being organized to build a line from Star Lake to New Johannesburg, the poles of the Cedar Lake Telephone Company being utilized from New Johannesburg.

UNDERGROUND.

WASHINGTON, D. C.—Details may be obtained from the trade report No. 3135 of the Bureau of Manufacturers in Washington, furnished by an American Consul in Canada, regarding a contract for conduit construction and telephone equipment for a local telephone company to extend its service 170 miles to connect with a neighboring city. It is proposed to install a complete underground conduit system. The management is desirous of closing contracts for the work as soon as possible, in order to commence work by May 1st, and is in a position to furnish specifications, at once, to responsible contractors. The work will include the laying of a cable under a river, the construction of a system of underground conduit in every street of the city, the equipment of a modern central exchange and the installation of an automatic service throughout the city. The contract will involve an expenditure of approximately $500,000.

STAUNTON, MASS.—The committee on reduction of telephone rates has recommended that the New England Telephone & Telegraph Company's wires be placed underground.